Science and Mathematics Education Centre

E-learning Use and Relevance in Vocational Institutes in New Zealand

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Declaration

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

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ABSTRACT

Following the initial enthusiasm shown by institutions to embark on e-learning, a sense of disillusion has followed. With many institutions feeling that the promise of e-learning has not been realised, these same institutions have been re-examining their e-learning use. This study examines the use of e-learning by vocational institutes in New Zealand by exploring lecturers' use of the technology and the impact on their students' success. The study also looks at what type of programmes use e-learning. Finally, the study examined the organisational support provided to the lecturers.

Data for this study were collected from two different groups by means of two different research methods. Lecturers from 13 vocational institutes completed surveys and e-learning managers from the same institutions were interviewed. Data were analysed by statistical methods and a grounded theory approach.

Lecturers who taught mainly diploma, degree or a mix of courses had a more positive perspective on how e-learning affected their students' success. Lecturers also held more positive views on using e-learning with theory-based courses. In terms of gender mix, lecturers who taught mainly female or mixed gender courses viewed the use of e-learning as having a positive effect on student success.

The e-learning managers' interviews were included to provide background about professional development and organisational support available to the lecturers. The analysis of the interviews indicated that a range of professional development opportunities were made available. It also indicated that the level of support was dependent on what drove the development of the courses. If the development was lecturer driven, the support provided was much smaller scale. If the development was driven by senior management or external funding, the support was provided on a much larger scale. These larger scale developments were generally project-based. This analysis echoed the lecturers' responses as the majority indicated that they had developed their own courses. The conclusions that can be drawn from this are that the majority of the lecturers who participated in the survey were e-learning enthusiasts. The key message for institutions is to encourage these enthusiasts, while also encouraging the larger scale online developments.

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GLOSSARY

Term	Definition
Asynchronous	In the e-learning context, it means learning that is not happening at the same time, for example posting messages at different times during the week.
Distance	A form of delivery that is not campus-based. This term will be further defined in the thesis.
eCDF	The E-learning Collaborative Development Fund, managed by the Tertiary Education Commission (an agency in the New Zealand Ministry of Education). It ran from 2004 to 2007 and was design to build e-learning capability across the tertiary sector.
e-learning	Electronic learning – any form of learning that is computer supported.
eMM	E-learning Maturity Model – a tool designed by Dr Stephen Marshall to measure the e-learning capacity of institutions.
ITP New Zealand	Institutes of Technology and Polytechnics of New Zealand, an agency that until recently acted as an advocate for the vocational institutes of New Zealand.
LMS	Learning Management System – a computer software package that institutions use to offer e-learning. There are different types but generally they are characterised by communications tools in a web-based environment.
MoE	New Zealand Ministry of Education
SDR	Single Data Return – data files recording enrolment and course information that are sent electronically to the MoE
TEC	Tertiary Education Commission (an agency of the New Zealand Ministry of Education)
TeLRF	The Tertiary e-Learning Research Fund, managed by the Tertiary Education Commission

CHAPTER 1
INTRODUCTION

In New Zealand the tertiary eduction sector is made up of eight universities, three wanangas (tertiary institutions who have a Kaupapa Maori approach, where principles of the Maori culture and world perspective are central to the institution), 20 vocational institutes – known as either polytechnics or technical institutes, 46 industry training organisations (skills training identification) and more than 800 private training establishments (Ministry of Education, 2008b). Each of the different types of tertiary providers has specialist areas although there is a great deal of overlap. E-learning studies in New Zealand have examined e-learning at a national level, many of these studies have been cross sector and they have recognised that there is a range of e-learning capability within each of the institutions across the sector. Within the New Zealand vocational institutes sector, e-learning has continued to grow and this sector is the focus of this thesis.

Originally, there was a great reluctance to embrace the technology that made e-learning possible. More recently, there has been a view by management and teaching staff in many polytechnics that it is not only valuable in terms of student satisfaction but essential to maintaining market share. Many polytechnics have undergone a major visioning process to establish the purpose for e-learning/flexible learning to provide greater access to students. A change in the way New Zealand government will fund tertiary institutions has also resulted in management and teaching staff perceiving that e-learning is not only for technophiles. This study proposed to answer fundamental questions regarding e-learning by collecting data from other studies and institutions in the vocational institutes sector.

1.1 CONTEXT OR BACKGROUND

E-learning or online learning was touted as the biggest new thing in innovative education. Many made claims that students would never have to come to campus again. Many institutions in New Zealand have tried to introduce e-learning into their delivery choices. Most institutions have implemented a learning management system; computer software that enables students to access resources and activities over the Internet or computer networks (Mitchell, Clayton, Gower, Barr, & Bright,

2005). Following the implementation of the system, teaching staff were then encouraged to load resources on for their students. Some embraced it, others were quite fearful of the changes that e-learning might bring. Institutions without a history of distance learning had a natural distrust of the perceived link between distance learning and technology. To paraphrase one common perception is that "We don't need to offer courses online; we've never offered distance courses."

Teaching staff at vocational institutes, like other tertiary institutions, may view e-learning as an all or nothing situation. They are concerned they may be forced to offer their courses completely through online delivery. Furthermore, they are concerned with many of the other perceptions that accompany e-learning like de-personalisation of education, non-recognition of teaching hours when staff are not standing in front of a class (Reeves, 2002). Many of the misconceptions were associated with a lack of understanding of the terms that are associated with e-learning/flexible learning, which need to be defined within the context of tertiary learning. The fundamental principle of Flexible learning is increasing student choice while managing institutional constraints.

There has been recently an imperative by the New Zealand government agency that oversees tertiary education for institutions to consider how programmes be delivered. Funding available through this agency, the Tertiary Education Commission (TEC), will soon be aligned to student success and not simply the number of students enrolled in the course (Cullen, 2006). Put simply, this means institutions need to recognise that their clients (the learners in their area) may need more delivery options in order to succeed. Linked with these changes is the concept of "regional provision". This would imply that tertiary institutions need to consider what courses they should offer and how they should offer them. Historically, vocational institutions have tried to compete with each other nationally and also with the universities, by offering similar programmes/qualifications. The indication from the government through the regional provision is that these institutions must now emphasise those courses that best suit their local region. There is also an implication that courses must be delivered within the region where the polytechnic/technical institutions are located (Mallard, 2005).

Finding what courses best suit their region is only half the story – finding the right delivery option that supports learning and teaching is the other most important component. They need to consider that their clients (the students in their area) may need more choice in order to succeed. The economic environment of low unemployment until early 2008 meant that many learners wishing to up skill were unable to attend classes because they were working full time. Part-time or evening courses are sometimes an option for these learners, but they do not suit all learners due to other commitments. There is still a perception that students must come to campus in order to learn. Many previous studies have discussed whether or not attending campus-based learning is of a higher quality than online learning. Another consideration is whether or not those learners who cannot attend the campus want to use technology to access class resources and activities. A range of options needs to be made available. One key issue for what options might be selected is whether or not they will retain students. In an article on retaining online students, McEwen and Gueldenzoph (2003) indicate that institutions should get to know more about their students in order to profile the types of online students. Zimitat (2004) indicates that technology use may be dependent on age and gender. Equally important is profiling courses, knowing what courses best suit the different delivery options, particularly in terms of level of study, subject area and student demographics. This is also an area that has not been explored to any great depth.

There has been agreement in the tertiary sector in New Zealand that theory courses better suit e-learning than more practical courses. As many courses and programmes offered at polytechnics/vocational institutions are practical based, it may be equally important to profile programmes and levels of qualifications, in order to determine what courses best suit the different delivery options. This is an area that has not been explored to any great depth in the literature. One national study was focused particularly on courses that were a minimum of 15 credits, which is more commonly associated with university level courses (Marshall, 2006).

One last area of interest is that of e-learning support, both in terms of teaching staff and student. Professional development and ongoing support obviously have a major impact on the success of e-learning. Teaching staff may receive support both in terms of training and time. Additional time may be required at staff meetings/gatherings to

de-mystify some of the misconceptions of e-learning so that teaching staff can be re-assured that they will not be made redundant (Li & Akins, 2005). Students also need support particularly in terms of the difference between being face-to-face and online learning, which may require an examination of the materials used to help students. If a course is selected for online delivery or some aspect of the course will be delivered online, it is important that students understand the expectations and demands of online study. Diaz (2002) recommends using "readiness surveys", before students commence online learning.

All of these components affect the instructional design of the course. As not all the courses that use e-learning tools are based online, then it is also important to look at the tutors' approach to teaching and learning.

1.2 SCOPE OF THE THESIS

This study looked at these issues within the New Zealand polytechnics/ technical institutes sector, made up of 20 institutions. These institutions were until recently grouped together through their affiliation with the Institutes of Technology and Polytechnics of New Zealand (ITP New Zealand), which acts as an advocacy body and formulates policy on quality assurance (Institutes of Technology and Polytechnics New Zealand, 2008). At the time of participant selection one of the 20 vocational institutes sat outside of this grouping and as such was not invited to take part in the study. All of the ITP New Zealand affiliated institutions were asked to participate in the study. Thirteen institutions agreed to take part.

In order to better understand how each of the variables affects the success of the students involved with courses that have an e-learning components, two groups were surveyed. The first group was those who are involved in supporting e-learning in an institution, these were referred to as "e-learning managers". The second group was those who were involved with teaching using e-learning, these individuals were referred to as "teaching staff". These groups were constructed from the 13 vocational institutes whose Chief Executives had provided consent.

This study did not involve participants from other areas in the tertiary sector, for example, the university sector in New Zealand, nor any representatives of the three wanangas.

The study sits along a research continuum from teaching staff and student views of e-learning and evidence of how e-learning is affecting student success. Until recently this research has been focused more on the perceptions of whether teaching staff and students like e-learning rather than evidence based. By examining teaching staff use of e-learning and the types of programmes/qualifications where they are using it, the study provides an opportunity to weigh up the quality of e-learning use against the teaching staff perspectives of how e-learning is affecting their students' success.

The overall aim of the study was to focus primarily on the support provided by the institutions and by the teaching staff's perceptions of how e-learning is affecting the success of their students. The following research questions were proposed to achieve this aim:

- Are there different levels of e-learning? Is it important to make a distinction?
- Do these different levels suit different qualification levels or topics?
- Do different topics better suit e-learning? Do vocational institutes offer these topics?
- Do different types of learners better suit e-learning? Do the vocational institutes have these types of learners?
- Is technology always the answer?

1.3 SIGNIFICANCE OF THE STUDY

The study is significant in the following areas; the New Zealand polytechnic/ vocational institute sector; the vocational training sector; and in the tertiary sector in New Zealand. There is also significance for institutions overseas, particularly those involved in vocational and tertiary education. From a theoretical perspective, the study added to the knowledge of e-learning managers' and teaching staff

perspectives and perceptions. Further, the study provides a current view of how e-learning is being used in the polytechnic/vocational institute sector.

1.4 LIMITATIONS

Restricting the research to institutions affiliated with ITP New Zealand is one limiting factor of the study, but it is hoped that it will have more universal application. Another limiting factor is that choosing a sample group of teaching staff, simply because of their interest in using new forms of teaching, may mean that this group's practice is more innovative than other teaching staff at the institution. Having an innovative "teacher/tutor/lecturer" may mean that the group of students will have greater success rates or at the very least, the teaching staff will perceive that their students will have greater success rates.

1.5 OVERVIEW OF THE METHODOLOGY

E-learning is an approach that covers different levels of an institution. In order to get a balanced perspective on the current situation in the polytechnic sector, it was necessary to obtain information from individuals with different roles in the institution and collect information about factors that relate to e-learning. These factors include: the teaching capability of staff, attitude of the teaching staff, student age and gender. Therefore it was necessary to collect these data from those that were teaching using e-learning tools. Other issues of quality relate to the support and professional development that tutors receive in e-learning. Additionally, an institution's approach to the way that courses using e-learning are developed is important and this information has been gathered from both the teaching staff as well as those that are responsible for supporting e-learning in an institution. For this reason, feedback was also sought from e-learning managers. These two sources combined with the literature review provided a triangulation of sources.

A new research instrument was designed to collect data from teaching staff and this was presented as an online questionnaire. Questions for the e-learning managers' interviews were formulated and trialled with a panel of experts.

The participants were selected by their institutions' membership with ITP New Zealand. E-learning managers were invited through their Chief Executives to

participate in a telephone interview. Subsequent to the interview, the e-learning managers sent email invitations to the teaching staff at their institutions to complete the online questionnaire.

The data collected from the two groups were analysed using a variety different methods. The data from the teaching staff were analysed using statistical methods. Examples of the comparisons that occurred were to determine the e-learning levels that teaching staff are implementing and to then examine associations between this level and the amount of perceived e-learning support at the institution, both from the teaching staff and the e-learning managers. Another association that was considered was the link between the institution's history of distance education and e-learning engagement (number and level of the e-learning courses). Additionally, the e-learning managers' interviews were analysed using Nvivo software which allows for coding in qualitative analysis and is an effective tool in a grounded theory approach (Bringer, Johnston, & Brackenridge, 2006). The grounded theory approach is used in order to determine if there is new theory that may be created (Strauss & Corbin, 1990, 1998). New theory may indicate causal relationships between the amount of support offered and the teaching staff's perception of e-learning's effect on their students' success.

The data collection, analysis and methodology are discussed further in Chapter Three of this thesis.

1.6 TERMINOLOGY TO BE USED IN THE THESIS

The following section describes terminology that is used throughout the study.

The term "vocational institutes" is used as a generic term but will apply specifically to those institutions that were affiliated to ITP New Zealand. Although the term ITPs is widely recognised in New Zealand to mean institutes of technology and polytechnics, it may not be easily recognised by those outside of New Zealand who read the report. These types of institutions have developed from "community colleges" where more practical subjects are taught with expansion into fields such as business, information and communications technology, travel and sport/recreation. In the latter part of the 20th century, there was also an increase in the number of

undergraduate and graduate degrees offered in these institutions as the vocational institutes attempted to achieve university status (Dougherty, 1999).

Please note that in this study, the researcher would prefer to define the concept of course participants as learners instead of students, but has chosen not to do this for a variety of reasons. Firstly it may lead to an overuse of the stem of the term "learn" throughout the report. Secondly, the term “students” may be more widely recognised by the teaching staff in the context of the survey they complete. Finally, it may also be more widely recognised by those that read this thesis.

The term “lecturer” is used as a generic term to indicate a collective of those involved in teaching courses. This term has been chosen instead of using terms specific to different countries or tertiary institutions. The term “teacher” used at Australian TAFE (Tertiary and Further Education) institutions equivalent is not used in the tertiary sector in New Zealand, only the primary and secondary sectors. In the same way, the term “tutor” may not be widely recognised outside of New Zealand. Even within the polytechnics/vocational institutes sector in New Zealand there is a range of titles ranging from tutor to lecturer and academic staff depending on the level of the programmes and institution. The only references to the term “tutor” are within the survey and consent form that were sent to the teaching staff, as it was felt they would recognise the term. In discussions regarding the individuals’ responses to the survey the terms “lecturer” or “staff member” is used.

In order to keep some commonality in the learning undertaken by students, the term “course” is used to refer to a unit of study completed by students. Qualifications in the ITP sector are dominated by competency based unit standards at the lower qualification levels. These units of study are sometimes called courses or modules and those in the high qualification level are often called papers. They have different levels and credit values so it is not possible to compare them. However, as this study does not attempt to compare credit values of courses, it is sufficient to have a generic term such as “course” used throughout. A complete “programme” of study refers to all the courses that are required for a qualification, whether this occurs at the certificate, diploma or degree level.

In New Zealand vocational institutes, the term "department" refers to the lecturers and administrative staff involved with teaching any grouping of qualifications within a similar topic area. The term "school" refers to a grouping of departments and is comparable to the term faculty within the university sector.

There is further definition of many common e-learning terms in Chapter 2 in the Review of the Literature.

1.7 OVERVIEW OF THIS THESIS

This chapter introduced the research questions that form the basis of this study. Chapter 2 is a detailed review of current literature in this topic area, which identifies trends in the tertiary sector in New Zealand and internationally. It provides definitions and current theory regarding different aspects of e-learning, flexible learning and distance learning.

Chapter 3 outlines the methodological framework of the research undertaken in this study and describes the research methodology in terms of institutional approaches and teaching staff's practice in gauging the staff's perceptions of their students' success. It discusses the rationale for a new research instrument and explores the grounded theory approach to the data analysis of the e-learning managers' interviews.

Chapter 4 discusses the findings of the surveys that were administered to lecturers who use e-learning tools in their courses. The findings are presented through a series of statistical tests.

Chapter 5 discusses the findings of the interviews that were conducted with the e-learning managers to determine the level of professional development and institutional support offered to those lecturers who used e-learning tools in their courses. This analysis was performed using a grounded theory approach. This approach will be discussed in Chapter 3.

Chapter 6 provided further discussion regarding the data collected from both groups. These findings are then triangulated with the review of the literature to verify the findings.

Chapter 7 provides conclusions in addition to recommendations and implications for further study in this area.

The original lecturers' survey and e-learning managers' interview instruments used in this study and the associated consent forms are available in the appendices.

CHAPTER 2
REVIEW OF THE LITERATURE

There is a wealth of information on e-learning and all its associated practices. At this time in the New Zealand tertiary sector, there are a number of initiatives by the government to improve the quality of tertiary education provision particularly by the vocational institutes. E-learning cuts across some of the government initiatives, particularly in terms of government funds to improve innovation and quality in the sector. By examining some of the outputs of this funding, and the concepts of good teaching practice, it may be possible to determine where e-learning practices are working well in New Zealand and more broadly in other countries.

This study examines a number of different factors that may contribute to successful implementation or embedding of e-learning practices. These factors involve three different components that contribute to the success of e-learning practices and for that matter in the success in any form of teaching delivery. These components are: the organisation, the lecturers and the students. How these components contribute to successful e-learning involves considerations of the organisational approach and support, including issues of staff work load and professional development, staffing and technical assistance. Other considerations included teaching practices and perceptions and contributing student factors.

First though, it is necessary to place the discussion in context by defining what is meant by e-learning. There are any number of terms and definitions that include some reference to e-learning. They range in scope from technology enabled learning to concepts of choice, place, time and pace that define flexible learning and distance learning. Many recent articles and theses have defined these terms. The following definitions presented in the initial section of this chapter are drawn from these studies.

2.1 DEFINITIONS

Although the concept of e-learning has certainly come of age, following a decade of the use of the term, and so many interpretations, it is important to define it in order to place it in the context of the New Zealand vocational institutes sector and this study.

Although there appears to be some consensus about the terms, there is still a great deal of confusion. It is also important to get a sense of the historical perspective, in terms of how e-learning fits in with traditional methods of educational delivery. There have been a number of studies that have defined and described e-learning, online learning, flexible learning and distance learning. There is a considerable amount of overlap for each of the terms and many outside of the e-learning arena do not recognise the terms or the differences. Even those within the e-learning area may have different interpretations. Therefore, it is most appropriate to explore these definitions.

2.1.1 E-learning Definitions

E-learning is most often defined as any technology enabled learning. It can range from meaning students using software in a computer lab, on a CDROM and over the Internet. It has been defined in a number of different publications and certainly in the vocational institute sector the original definition was provided by the seminal report from the e-learning advisory group in their report "Highways and Pathways". Their definition, "Learning that takes place in the context of using the Internet and associated web-based applications as the delivery medium for the learning experience." (e-Learning Advisory Group, 2002, p. 9) has been widely recognised as defining e-learning in terms of delivery, but there are other definitions that are much broader in scope. The level of interaction in e-learning can vary greatly and the venue where the learning occurs can also vary greatly. Information and communications technology (ICT) has certainly had a major influence not only in traditional classroom instruction, but also in terms of how learning can be conducted outside the classroom. Many may believe that e-leaning has been fully defined, yet recognised e-learning experts often still clarify their definitions as part of a presentation or publication. For example, Bates (2008) prefaced a conference presentation with his own definition of e-learning.

In its simplest form, e-learning is learning that is enabled through the use of ICT. It is designed to enhance the student and staff experience through a variety of methods, including communication, collaboration and resources sharing. E-learning can be considered along a continuum from supporting face-to-face learning to fully online

learning where all course resources and communication is enabled with technology. Levels and classifications that sit along this continuum are discussed in this thesis.

2.1.2 Origin of Terms - Distance and Flexible Learning

Initially, the terminology included distance learning, distributed learning or correspondence course delivery. In its broadest sense, distance can incorporate a number of different modes or times of learning. One definition, from the e-Learning Advisory Group, commissioned in 2001 by the then Tertiary Education Minister of New Zealand, describes distance learning as "any type of educational situation in which the teachers and students are separated by time, location or both" (e-Learning Advisory Group, 2002, p. 65).

E-learning terminology now includes hybrid or blended courses where face-to-face class time is reduced and replaced by online activities. E-learning may also be combined with any form of non-campus based delivery. This type of delivery describes any delivery modes that occur outside the traditional campus based classroom. This may occur in the work place, special purpose vehicle/facility, community facility or in a more virtual space like the Internet. In other words, wherever the providers and learners feel that learning should occur (Seaman, 2003).

These terms have grown from historical perspectives of situations where students, who for whatever reason, could not attend scheduled classes at tertiary institutions. This is the case with distance education, where geographical distance prevented students from attending a conventional classroom-based programme.

One type of distance education was referred to specifically as correspondence courses (Taylor, Postle, Taylor, & Clarke, 1999). In New Zealand, there have been a number of distance courses where information was provided in a print format which is sent through the post. There are many programmes that still use this approach in the vocational institute sector. Historically, distance education encapsulated many different aspects. Like the traditional correspondence course, it was generally a result of not being able to attend classes on campus due to family or employment reasons. Also included in these expectations was the concept of self-paced learning where the student could move through the course content at a pace that best suited the

individual. Distance learning has almost always prescribed a style of interaction between lecturers and students. This interaction would generally follow a pattern of feedback only offered on the completion of assessment tasks.

Increasingly, the traditional communications methods of print-based courses of distance education are being supplemented by student-student and student-lecturer online interactions, or replaced by fully online courses. In a more Internet-based environment, it is possible for learners to select a mix of learning experiences to suit their personal work and family circumstances (King, 2001).

At this point it is important to make a distinction between facilitated and non-facilitated learning. Any learning that does not involve a teaching presence in any mode (face-to-face, mixed or fully online) may be classified as training. Training builds on the concept of self-paced where students can work their way through the content depending on their choices. They do not have to follow a sequential format. Feedback can be provided through pre-formatted text in quizzes or other online activities so that lecturer intervention is not required.

2.1.3 Flexible Learning

There has been a recent trend to use the term flexible learning. Flexible learning refers mainly to increased choice for students, choice in a number of different variables: choice in time, place, access, learning style, pace, mode, tools and sequence of experiences, institution and content. It is a student-centred approach to education and training that covers a range of delivery modes, including distance education, work-based learning, mixed-mode delivery, blended learning, e-learning, online learning, self-paced (Australian National Training Authority, 2003).

In defining flexible learning, first and foremost is the concept of time and place. Many lecturers perceive that the most advantageous type of learning occurs in a classroom. They believe that any other mode would lead to lack of student understanding. Yet, even with some limitations, making such a generalised assumption has many inherent problems, including many issues such as lack of consideration for student learning style, or work/life pressures on students' time.

Mixed-mode or blended learning describes delivery modes that fall anywhere along a continuum of classroom-based teaching to fully online learning. They describe where the class meets face-to-face with the lecturer for some parts of the course, with ICT used according to the needs of the learning group. The most appropriate mix is determined by the learner profile and learning objectives for each course (Marshall, 2005).

2.1.4 Concepts of Flexibility and Pace

With a move to increasing student choice, one of the major issues is letting students choose their own pace. In an institution that has been traditionally face-to-face where programmes are completed in a set time frame, it may be difficult to manage different learning paths for students. This aspect of flexible learning/e-learning is one that may be challenging these institutions, including those that are distance based (King, 2001). To understand why, it is useful to see the effect of time and distance on flexibility and pace.

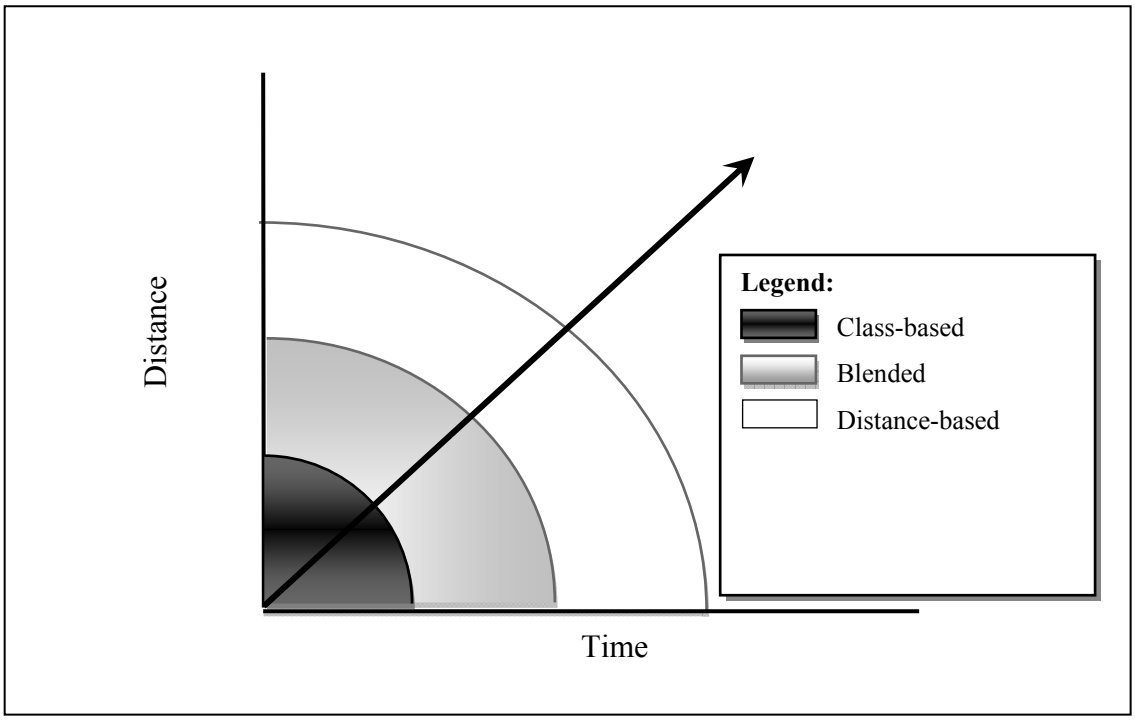

Figure 2.1. The effect of time and distance on flexibility.

Figure 2.1 depicts the connection between time, distance and pace. It has been adapted from Anderson's work on "educational media subsumed by the web". His axes were "interaction" and "independence of distance and time" as opposed to distance and time (2004, p. 45). As the delivery mode moves along the arrow towards self-paced learning there is greater flexibility but generally less interaction between the students and the lecturer. The first area, indicated by the dark grey area could be likened to a classroom-based situation which might be characterised by lecture, group discussion or other class-based activities. The next area, the solid grey area would be considered where blended learning/mixed-mode learning occurs. These activities would occur in class and/or online, synchronously (at the same time) or asynchronously (at different times). It would include all the benefits of face-to-face with the flexibility of asynchronous activities using e-learning. It ensures that there is continued interaction between student/student. Work-based learning would promote this type of learning as different students may move through the resources and material at different rates based upon the type of work they are encountering at their place of employment or work placement. Any online discussion that might occur could then prepare students to meet together in a classroom-based environment for a short block course or workshop.

2.1.5 The Right Balance of Flexibility

Certainly, e-learning allows a number of choices as to how students can move through the material and resources. The issue for students and for institutions though, is a case of balancing flexibility against other considerations. The major problem with flexibility is that along the continuum an institution needs to find the balance between increased choice and institutional constraints. These constraints could be financial, compliance driven and physical in terms of buildings, classrooms and timetables. The question is about making sure that the cost of delivering a course/programme is not higher than the income or benefits received from that course/programme. For a student, the balance is about ensuring that their choices allow them to learn in a way that best suits them, but also supports them (Ministry of Education, 2004).

2.1.6 Flexible Enrolment and Self-paced Learning

One consideration for institutions is how they approach enrolment. Does the institution allow a variety of open enrolment options, for example like rolling enrolment and self-paced study?

Flexible enrolment is perhaps the most flexible approach to learning. This is where students can decide when they enrol, for example students could enrol any given Monday and then would be expected to complete the course in a set time. Open learning is defined as the ability to enrol at any particular time. (As a point of clarification in the New Zealand vocational institute sector, "open entry" indicates the expectation of the student level and the fact there are generally no pre-requisites for entry into the programme.) In addition to this flexibility in enrolment and pace of study, flexible learning may even incorporate choice about assessment deadlines and assessment types.

Much of the problem is the automatic linking of e-learning to self-paced learning (Anderson, 2004). Although there may be a great deal of overlap, the concepts can be interpreted very differently. Self-paced learning such as described in the previous paragraph can often leave students feeling isolated and unsupported and does not incorporate any of the student interaction that many see as very important. Recent research claims that learners benefit from the interaction with other students (Jeffrey, Kinshuk, Atkins, Laurs, & Mann, 2005). It is easier for a student to stay motivated when they are working within a cohort of students. Some online courses/programmes are built around a cohort; learning design approaches that create this feeling of cohort will be discussed later in the chapter.

Now the field has become even cloudier as there is a move in New Zealand to offer courses in what is referred to as blended mode, which refers to a combination of online and face-to-face learning (Seaman, 2003). Blended learning although broad is narrower in scope then flexible learning. Why has blended learning increased in popularity in recent years? Although many have claimed that e-learning can be as effective as traditional classroom-based learning, a current belief is that by combining the best of traditional classroom and e-learning would provide a greater chance of student success.

There are other options in terms of flexible learning particularly in terms of work-based learning and assessment. This study however focuses on technology and learning.

2.2 LEVELS OF E-LEARNING USE

In examining an organisation's approach to e-learning, it can often be measured in terms of levels of e-learning use. In this section two different classifications of e-learning use are compared: one from an international perspective and the other that is currently being used in the New Zealand tertiary education sector. The selection of these two forms of classification serves two purposes. First it places the New Zealand form in the context of a wider international view. Second, it indicates the way New Zealand courses will be classified in the future as the MoE (2010) have now proposed a new classification based on the OECD model to be used from 2011 onward.

2.2.1 E-learning Use Scale - OECD

The scale or classification below was developed by the Organisation for Economic Co-operation and Development (OECD), (2005):

- None or trivial e-learning
- Web-supplemented (e.g., course outline and lecture notes online, use of email, links to external online resources)
- Web dependent: students are required to use the Internet for key "active" elements of the programme – e.g., online discussions, online project/ collaborative work – but without significant reduction in classroom time.
- Mixed mode: students are required to participate in online activities e.g., online discussions, online project/collaborative work, as part of course work, which replace face-to-face teaching/learning. Significant campus-based attendance remains.
- Fully online

The OECD describes this as a "typology". One significant aspect of this classification is that it measures the reduction in face-to-face class time in a prescriptive manner. The OECD states that this classification assumes the institution is campus-based and that e-learning is defined as being linked to the "Internet or other online network" (Organisation for Economic Co-operation and Development, 2005, pp. 11 -12)

2.2.2 E-learning Use Scale – New Zealand Ministry of Education

The New Zealand Ministry of Education (MoE) has also defined a classification system for e-learning. This classification provides a structure of levels was introduced in 2003 (2008a, p. 92). Proposed changes have since been identified by the MoE (2010) and should be implemented in 2011.

The classification is called the "Internet Based Learning indicator" and the description is: "The field is used to indicate whether teaching and learning in each course is currently available in part or as a whole via the Internet" (Ministry of Education, 2008a, p. 92). Additionally, the manual provides the following basis for capturing the data: "The field is used by the Ministry for tertiary sector reporting and policy purposes. For example, is internet-based learning helping to increase participation, comparison of outcomes for students learning online to those learning on campus. The field is also used for inclusion in the Tertiary e-learning portal" (Ministry of Education, 2008a, p. 92)

The levels of the classification are:

- No Access is where no part of the paper or course is accessible online.
- Web-Supported is where a paper or course provides students access to limited online materials and resources. Access is optional, as online participation is likely to be a minor component of study.
- Web-Enhanced is where a paper or course expects students to access online materials and resources. Access is expected, as online participation is likely to make a major contribution to study.

- Web-Based is where a paper or course requires students to access the accompanying online materials and resources. Access is required, as online participation is required.

- For the purpose of clarity in this study, this classification will be referred to as the MoE Internet Use Classification. (Please note, in order to avoid repetition, the classification will be called MoE classification in this chapter.)

2.2.3 Comparison of the E-learning Use Scales

Figure 2.2 compares the two classifications and highlights the distinctions when e-learning use becomes a requirement of the course. Certainly, there seems to be more of a clear cut distinction with the OECD classification in terms of when students need to use e-learning for class activities and this level is below that of the MoE Classification. Additionally, it places these scales within the context of the e-learning definitions provided earlier in the chapter.

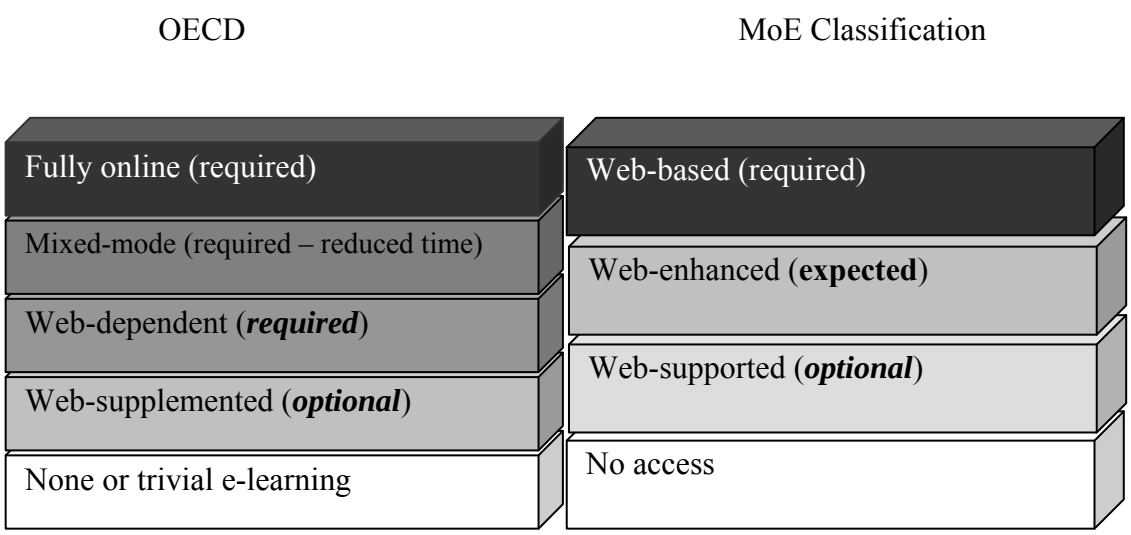

Figure 2.2. Comparison of the e-learning classification.

As indicated by the classifications listed above, E-learning is so general a term that it is important to separate the levels. When using any type of scale or rubric to describe e-learning there is the danger of overlap, but in looking at the essential meaning of each of these levels, it is possible to have some clarity of what constitutes these levels. Also of importance is the issue of what level of interaction should define e-

learning. Further analysis may be used to break these levels down in terms of administration, communication and real engagement.

The first level of "none or trivial e-learning" in the OECD scale and "no-access" in the MoE Classification would be equivalent, although neither rules out the use of ICT tools in the class.

The second level ("Web-supplemented" in the OECD scale and "Web-supported" in the MoE Classification) deals with the use of the web as an administration tool where information is provided to students, perhaps in the form of email announcements and links to course material, similar to Hockly and Dudeney's concept of these courses being "online bookshops" (2005). Although both levels provide access, they do not indicate that there is a great deal of engagement with the materials or other students through the LMS, although the OECD scale does discuss the use of email, it may be assumed that this refers to the staff member contacting a student or group of students. It can therefore be assumed that communication follows a "transmission" vs "engagement" approach. Many lecturers place all their course documents in their institution's learning management system (LMS), feeling that they are offering e-learning to their students.

Many refer to this phenomenon as virtual filing cabinets. Interestingly, staff that were unfamiliar with e-learning tools tended to use it as file repository (Hegarty, Penman, Brown, Coburn, Gower, Kelly, Sherson, Suddaby, & Moore, 2005). Through informal discussions with many e-learning managers/directors in New Zealand, much of the published statistics regarding what course are offered as e-learning courses are solely these types of use. These course documents are generally course outlines, timetables, handouts and presentations. This occurs particularly in terms of those lecturers who use the LMS to supplement their face-to-face class. The other major use of this supplemental use of the LMS is posting announcements in a similar way that lecturers would do on a whiteboard in their traditional classroom. Both students and lecturers see a benefit providing resources via an LMS, for example, students who miss class feel they can be kept up to date and lecturers can direct students to the LMS for class resources. Providing resources on an LMS is an example of good teaching in the sense that it contributes to an organised coherent

class environment and may allow lecturers time to get on with other less administrative tasks in their teaching, for example planning quality learning activities. It is of interest that in the proposed changes to the MoE classification to be introduced in 2011, the MoE specifically refers to "classroom-based teaching" (2010).

The third level is where there is a significant break in the two scales. In the OECD scale "web dependent", students are required to participate in online discussions and "online project/collaborative work". In the MoE Classification the term "web-supported" may refer more to "encouraging" students to use online resources such as quizzes or optional discussion forums. The use of the term "online participation is likely to make a major contribution to study" may indicate that some of the formative learning may occur online, but no summative assessment will be conducted. As there was no further expansion of the definition in the OECD report, the third level in the OECD scale, this may refer to participation marks being attributed to online activities. The types of tools that might be used at this level are discussion forums, quizzes and wikis for collaborative work. The MoE Classification does not discuss classroom-based activities, so it may be assumed that there is an assumption that class time is not reduced. Without further expansion of the level, the major difference appears to be that some of the activities in the OECD scale will contribute toward either class attendance/participation or towards a summative grade.

There is a great deal of overlap in the final level in the MoE Classification and the remaining two levels in the OECD scale. The final level of the MoE Classification can refer to anything from blended learning to fully online, where access to the web (or course area) is mandatory. The fourth level of the OECD scale states specifically that it is Mixed-mode which is defined as having less face-to-face teaching time. The final level for the OECD is fully online indicating no class meeting times. (Organisation for Economic Co-operation and Development, 2005)

In analysing these levels and the definitions earlier in the chapter, the next aspect to examine in the organisational approach is to principal drivers for e-learning.

2.3 DRIVERS FOR E-LEARNING USE

Earlier in the chapter, there was discussion regarding the balance between flexibility and constraints and understanding where e-learning fits within this continuum. From an institutional perspective, what is the best choice? An institutional approach is necessary to determine the balance. It may be that e-learning is a natural progression for institutions that have traditionally provided distance education. For vocational institutes that have not traditionally offered programmes by distance education, there may be other considerations. Many institutions believe that e-learning or distance learning may be a cost saver. For example, having students work on their own computers in their own house means the institution doesn't have to maintain a physical location.

In some cases, the drivers come from outside the institution, including national strategies. The New Zealand government published an "Interim tertiary e-learning framework" (Ministry of Education, 2004). The framework fits into an overall strategy and the main objectives were that e-learning would promote programmes that would better quality, be more accessible and "increasingly relevant" (Ministry of Education, 2004, p. 2). It was perceived that the framework would enable New Zealand to maintain its position in tertiary education in the global context. In New Zealand and elsewhere, e-learning has been touted to have a positive impact on teaching and learning (Hegarty et al., 2005). The OECD report (2005) previously discussed indicated that this was not substantiated through research. If research did exist, it was often based more on student satisfaction than on students' results.

2.4 THE PERCEIVED BENEFITS OF E-LEARNING

Many institutions have viewed the two main benefits of e-learning as saving money and attracting more enrolments (Zempsky & Massy, 2004). As indicated above, it was perceived that money saving would occur because it was perceived that the teaching staff/student ratio could be increased. Many have expressed the concern that this cost saving has not come to fruition. In business, it is clear how to delineate costs and profits but not always clear in an education setting. It is not always easy to complete cost-benefit analysis on teaching and learning (Organisation for Economic Co-operation and Development, 2005).

What are the costs? The initial cost of the technical infrastructure, such as implementing an e-learning management system are not as significant as the training and salaries of those that have to support the system.

There are also the development costs of the individual programmes or more specifically the resources in the programme. When developing the resources, decisions often need to be made as to whether lecturers should develop their own resources. The debate covers whether to keep resources at the low-end of technology so that lecturers are able to make changes themselves. For example, if they are developing a course on a learning management system, they may be limited to the tools offered by that system. For more sophisticated resources and activities developed using more complex software there is a need to involve individuals more skilled in the use of that software. The benefits of developing their own courses are that they learn to use the tools in the learning management software, yet at the same time it can cause barriers as it increases their workload. There was a concern by staff that they were spending a lot of time developing resources which might have been developed more efficiently by others more expert in the field (Hegarty et al., 2005).

Finally, the costs of developing a course are compounded by the perception that the online course must contain all the resources and activities for that course. As indicated by one writer, the concept of e-learning as a media-rich environment for learners often conceals the fact that these courses often lack hard copy resources, such as textbooks. Traditionally, face-to-face classes, particularly at an undergraduate level, have made extensive use of textbooks. By placing all the activities and resources online, the true cost of the development is hidden and can not be compared to face-to-face classes. In the past, the development of face-to-face teaching resources and activities did not normally cover developing a textbook (Graves, 2001).

Even when it was identified that e-learning development costs were often more costly than face-to-face, it was hoped that after the initial cost of development, once established the course/programme could be repeated many times to recover these initial costs. This may indicate some lack of understanding of online learning. There is still the on-going cost of the lecturers needing to facilitate the course, as there is

often a perception that e-learning does not need to be facilitated or taught in the same way that classroom-based learning does. Many expressed the concern too that if the lecturer who had been teaching on the course left, the next individual responsible for teaching would not want to use the e-learning components (Zempsky & Massy, 2004).

There was also the hope that e-learning would lead to a number of international enrolments and make New Zealand competitive in a global educational environment. (Ministry of Education, 2004) A study evaluating the e-learning Collaborative Development Fund (eCDF) initiative by the New Zealand Government found that even with the influx of funding to smaller institutions, it was generally those institutions who were already established in distance education maintained their advantage (Ham & Wenmouth, 2007). In most cases, institutions found that their online students came from their on-campus population (Zempsky & Massy, 2004).

Some of the main benefits have been identified by the lecturers themselves. One participant in a study by Hegarty et al. (2005) felt that e-learning provided opportunities to put 'experts' in touch with their students regardless of the geographical location of those experts. One participant felt that e-learning opened up a number of possibilities in terms of the types of information to which their students could get access. Students could access information from many sources in different areas of world.

Zempsky and Massy (2004) identified networks of scholars who have exchanged ideas and worked towards collaborations. The TEC is also pushing for a network of provision; this network is intended to remove redundancy in the provision of courses offered within the vocational institutes sector. Coupled with this is the concept of regional provision where the institutions are only allowed to offer courses within their own region or through a recognised niche market. At this time, there is a continued lack of clarity and definition about both the concept of network of provision and regional provision, but the indication is that The TEC is looking at the vocational institutes sector with a view to further reforms (Rennie, 2008). Where e-learning fits in the current tertiary landscape, remains to be seen, but The TEC's

recent moves are having a major impact in terms of institutions' choices about expansion into the area of e-learning.

2.4.1 E-administration and Support

Another dimension to examining e-learning and flexible learning is looking at other aspects of administration that may not be based with the LMS. As stated previously the lecturers will often use web-supported e-learning to assist in their administration of their classes, for example, course schedules, and provision of marks through online grade books in the LMS. A student's administration relationship with a learning institution extends beyond their interaction with individual lecturer.

Bates indicates that as student expectations for an institution moving into e-learning to provide more online resources for courses (whether face-to-face or online), there is also an expectation for non-academic areas to provide relevant electronic information or services (Bates, 2008; White & Milne, 2005). The initial contact with the institution would normally be through the enrolment process. For a student who will not be attending a face-to-face class, due to time or distance constraints, it might be quite advantageous to complete an online enrolment form. This may also be the case for other students even if they regularly attend the campus. There has been reluctance to establish an online enrolment process due to issues with proof of identity, including residency and/or citizenship (Tertiary Education Commission, 2007a). The introduction of a National This Student Number scheme (Ministry of Education, 2007b) has improved efficiencies in this area by allowing students to provide their number for identification.

There are many types of information services that are being made available to students. Some are based simply on providing information to students and for that reason are more static in nature, like intranets that provide information regarding campus events, etc. Other critical on-campus services are now becoming more readily accessible off-campus (White & Milne, 2005). Libraries have provided electronic resources for a few years in the form of online catalogues, e-books, electronic journals. More recently, some libraries have offered assistance through online librarian services. Learning support teams may need to be able to offer

support to students electronically as it may be difficult for some students to get to campus for face-to-face appointments with learning advisers.

2.5 RESISTANCE TO E-LEARNING

A major aspect of recent research is looking at why lecturers are adopting e-learning. There are a number of drivers for adoption from an institutional perspective, which have been outlined in the perceived benefits of e-learning. One international study outlined a number of issues for faculty who were asked to considered whether or not they wished to adopt distance learning as part of the role (Mills, Yanes, & Casebeer, 2009). The study used a grounded theory approach to the data collection and analysis which was built upon a conceptual framework. The framework allowed the three authors to identify themes that related to faculty resistance. The themes that evolved from this analysis included many barriers to adoption ranging from their own technical competence to lack of organisational support (Mills et al., 2009).

However, there are also many drivers for lecturers to adopt technology. A study of academic development and its effect on student outcomes emphasises the fact that institutional pressure and peer review are among the most powerful factors in getting lecturers to change their practice (Prebble, Hargraves, Leach, Naidoo, Suddaby, & Zepke, 2005).

As previously discussed, there are aspects of e-learning that cause resistance to its adoption. These factors apply at national, institutional, departmental and individual levels. There have been a number of New Zealand studies that look at lecturer resistance (Mitchell, Barr, Bright, Clayton, & Gower, 2004; Mitchell et al., 2005; Rosenberg, 2007). One study found that many lecturers did not see the benefit of using e-learning tools over face-to-face teaching (Hegarty et al., 2005). Another reported that many lecturers felt that there was no value placed on using e-learning tools; there was a lack of departmental focus on e-learning and a lack of support for e-learning development (White & Milne, 2005). Perhaps most importantly, is the change in expectation on lecturers' workload. It is widely acknowledged that e-learning requires additional time in establishing activities and resources online, and this was a deterrent for staff (McPherson & Montelpare, 2000; Mitchell et al., 2005).

2.5.1 Workload Issues

There appears to be a circular argument for many in terms of their forays into e-learning. They are often very reluctant to trial new initiatives due to their own time constraints. Without receiving an appropriate amount of release time to learn new technology and implement it successfully, they may actually be presenting a poor model for students to engage. For example, one of the issues for face-to-face lecturers is how extensively to use a discussion forum. Lecturers who run forums often find that they get overwhelmed when their students use the forum and it requires additional time to moderate outside of class time. If they are maintaining the same level of face-to-face teaching time, then this is in addition to their workload. Alternatively, if the lecturers fail to spend enough time and energy engaging students on the forum, then the forum will not gain enough momentum to keep the students engaged. (Hegarty et al., 2005)

There have been a number of studies about the link between e-learning adoption and the institution having a shared understanding of workload (Mitchell et al., 2005). However, there has not been a great deal of study regarding the link between the level of e-learning use (whether most of the courses are web-supplemented/web-supported or further along the spectrum.) In terms of the OECD e-learning level model discussed in Section 2.2, this would be indicated by the reduction of face-to-face teaching. Even those lecturers who see great value in e-learning will often stay at the administration level because of uncertainty of whether their extra effort will be recognised. This lack of recognition for online teaching time may be caused either by the fact that their institution has not established a workload model or that the workload model has flaws in terms of no recognition for online teaching time (Mupinga & Maughan, 2008). So they remain at a lower e-learning level.

Still other lecturers have no desire to teach online and wish to retain their face-to-face time. They only want to venture into using technology in a classroom or use an LMS to provide access to class resources. Even without moving their courses to a web-based situation, they may find that loading their resources into the LMS may require additional time. This may be balanced by less time required for administration. For example, with all their resources in the LMS, students may be

able to take more responsibility in locating assignments, handouts and course timetables.

However, even when lecturers do venture into e-learning, there may be a misinterpretation of what is expected of the staff member, based on old distance-based models. From the staff member's perspective, it is often most effective to teach distance learning. Without having to present lectures, the main contact lecturers have is to provide general feedback to students, but only once they have completed and submitted their assessments.

For those who do want to teach online, there are a number of guides that provide useful tips on managing online teaching workload (Butler, 2003; Ragan & Terheggen, 2003), However, there has not been a great deal of research on workload models in New Zealand. In addition, it appears that very few institutions in New Zealand actually have a workload model that includes consideration for a number of e-learning related duties. The author facilitated an online conference in late 2006 to investigate what models there were in New Zealand in order to share this information with relevant individuals within the tertiary e-learning sector (Wilson, 2006). In New Zealand much of the work that has been completed is based on research undertaken by Stephen Bright as part of his Flexible Learning Leader in New Zealand (FLLinNZ) Scholarship. In 2004 and 2005, he visited a number of institutions in the United States, Australia and New Zealand and looked at their staff online teaching workload policies. In most cases he found that although there where a number of institutions considering the implications for e-learning, a number had not established a policy (Bright, 2008).

The debate about whether a separate policy needs to be negotiated may be academic, but there is a general acceptance that e-learning is different and has different implications for staff time (McNickle & Cameron, 2003; McPherson & Montelpare, 2000; Mupinga & Maughan, 2008). A shift must occur in the concept of how people spend their time working with their students. Courses at New Zealand vocational institutions quantify the number of hours that are required for completion of a course. This expectation is both in terms of lecturer and student time, so there are indications for workload for both. Some of the time is identified as teaching hours, where the

lecturers interact/communicate with students, directed hours where students are provided with specific tasks to complete and finally self-directed hours where students further research/do further study to support their learning. The other aspect of workload is the time considered office hours/or duties other than teaching. How should that time by calculated? As previously discussed there are a number of studies that provide examples of how to manage online teaching time so that it does not become overwhelming (Ragan & Terheggen, 2003). Bright (2008) refers to these practices as "self care". However, there is still a fear of staff new to e-learning that they will need to respond to every student posting and will need to be available seven days a week.

The problem with trying to match e-learning with this type of model is that it does not make a good fit as much of the work is asynchronous (not happening at the same time). This is in contrast to the use of ICT in the classroom which fits the same pattern as face-to-face timetabled hours. Even web-supported e-learning fits as the tasks would be completed during the student directed learning hours. However, in any other form of e-learning which signifies a step along the spectrum towards fully online learning, it may be necessary to have to re-examine what is meant by teaching and learning (Mupinga & Maughan, 2008; Nichols, 2008). Managers who have not taught online may have the view that lecturers should engage in activities that closely resemble class-based activities, for example, lecturers creating podcasts of lectures or holding class-based discussion at an agreed time. Meeting synchronously (at the same time) with their students in a chat room environment is easy to measure in terms of online teaching time. Although these activities make easy comparisons, they may not necessarily be examples of good practice and in most cases may not be the way online courses are organised.

The research undertaken by Bright (2008) identified the following models:

- Direct comparison – Where teaching a class online is seen to be equivalent to teaching a class face-to-face.

- Negotiated - Where managers and lecturers negotiate a workload. Factors that might be considered are number of students, budget and number of staff.

- Phases – Where different phases of developing and delivering an online course are determine to have different workload.

- Outputs – Where the workload is based upon the number of students.

- Roles – Where workload is based on what type of activity undertaken by the staff member, for example, teaching, office hours, course development, assessing and feedback, etc.

As previously discussed, adoption of e-learning tools and the move to online teaching is often based on how much discussion there has been about workload in the institution. It may be anywhere on the spectrum between preliminary discussions and an established workload policy that has integrated e-learning workload issues (Wilson, 2006).

2.5.2 Other Considerations for E-learning Adoption

Surrounding the issue of workload is whether or not lecturers get release time for developing their courses (Lazarus, 2003; Mupinga & Maughan, 2008). Lead-in time is often an issue, even if there is some staff release time, it can often be quite a tight lead-in from when a course has been developed and when it needs to be taught. In some situations this may be a case of the two activities overlapping to a point where online resources and activities are completed at the same time a staff member is teaching the course. This highlights quality issues as there was a concern by some staff that this lead time meant that the students would become "guinea pigs" for the course and due to the time pressures, they had to accept it (Hegarty et al., 2005). Even when institutions provide release time, backfilling can often become an issue.

In addition to the lecturers, e-learning needs to be supported by e-learning experts in an institution. Depending on the size of the institution, there may be individuals with different expertise, such as strategic thinking at institutional and national level, technical learning management administration, multi-media experts and instructional design (White & Milne, 2005). It is often not just the lecturers, but may be related to the resistance of administrative staff in terms of changes to the way they work. Some of the issues that are raised are caused by a lack of understanding of the different roles.

Other barriers are the issues of ICT infrastructure security. The expansion of online student services like online enrolment discussed earlier is only one aspect of the provision of ICT support. Those departments that are charged with keeping the infrastructure running may adopt a restricted approach in terms of the web sites that can be accessed by lecturers and students. Additionally, they may restrict the types of software programmes that can be run on the system. The different focus on the use of technology by ICT staff, lecturers and students is understandable, but it does create a tension in the use of technology. (Hegarty et al., 2005).

Much of the recent research has been focused on e-learning adoption and barriers. From an institutional perspective, it is generally considered as a positive step for the staff and institution. Clearly, an institution has to consider these barriers and determine whether or not increased of e-learning tools is appropriate. Many of the issues revolve around time involved developing courses and concern over technology capability. First and possibly most important should be to ascertain that e-learning is actually going to bring some benefit to both students and staff, either in terms of administration/information or learning. The OECD has identified a number of stages that many institutions follow in determining the extent of e-learning use (Organisation for Economic Co-operation and Development, 2005). Incorporated into these stages is consideration of the benefits of e-learning.

As indicated previously, many of the initial drivers like reducing cost through efficiency and attracting more enrolments has not come to fruition. More recently in New Zealand, the push has come from governments in terms of national strategies (Ministry of Education, 2004), and from the institutions themselves in terms of increasing the percentage of courses that have some e-learning component. This push might be viewed in terms of keeping up with the competition and ensuring that the graduate profile of the institution includes information literacy skills to better prepare students for the work force.

2.6 FACTORS AFFECTING SUCCESS

Having placed the state of e-learning in New Zealand in a national and international perspective by defining the terms, discussing the perceived benefits and barriers, it is now time to look at the factors that can affect and contribute to the success of e-

learning at a national and institutional level. Much of the recent research in New Zealand has been focused on the factors affecting successful e-learning, along the spectrum of individual courses through to organisation structures that support e-learning (Mitchell et al., 2005; White & Milne, 2005).

Many of these studies were the initiatives of national funding; the Ministry of Education introduced two funds to build the e-learning capability across the sector. The Tertiary e-Learning Research Fund (TeLRF) was "established with a view to funding research into tertiary e-learning in New Zealand in order to provide a more comprehensive context and framework to inform strategic investment and decision making around e-learning for tertiary education organisations" (Ministry of Education, 2007c). The other fund, the Tertiary e-Learning Collaborative Development Fund (eCDF) was "designed to improve the tertiary education system's capability to deliver (e)learning that improves education access and/or quality for learners" (Ministry of Education, 2007a).

One such report examined the way that e-learning was introduced. Anderson et al. see three phases to e-learning implementation. Initially, the impetus comes from the government. The second stage is where the institution implements and integrates e-learning within the organisation and the third is where there is a transformative effect upon the institution. This third stage sees a change to the way the institution perceives learning and maybe perceived to be more transformative (Anderson, Brown, Murray, Simpson, & Mentis, 2006).

Characteristics of the strategies adopted at these stages include physical infrastructure implementation in the first stage, building quality into e-learning at the second stage by building staff capability and high quality instructional design and then in the third stage, working toward institutional approaches including research and evaluation (Anderson et al., 2006).

Recent evidence indicates that there is a further stage which is leading to more sector-wide collaboration and capability building. There is further discussion about evaluation of e-learning later in this chapter (Anderson et al., 2006).

2.6.1 Organisational Readiness

In the research completed by Anderson et al. (2006) discussed in the previous section, at the first level of e-learning adoption the institution may have implemented a learning management system. It is recognised that most institutions see this as the first step in introducing e-learning. The second level looks at the institution level introducing quality e-learning with instructional design and building staff capability.

Equally important is examining what benefits e-learning will bring to both students and staff, either in terms of administration/ information or learning, therefore having an overriding vision is also important. Having this vision encapsulated in a strategy may indicate that the institution is better prepared to ensure quality e-learning courses. If the strategy is tied in with the general direction of the institution, then schools and departments will place a higher priority on e-learning development. There may be issues of organisational change that are necessary to consider, having a long term plan indicates that the institution would have a systematic approach to these issues. The plan may be based on an e-learning strategic plan or incorporated into another long term plan, for example, a teaching and learning or academic strategy. Certainly, one of the areas identified in Marshall's model of eMaturity looks for the presence of e-learning strategy (2006). Others echo this sentiment as well, that having a vision is one of the significant factors affecting the successful adoption and implementation of an e-learning programme. A vision integrated with staff development and focus on teaching and learning means an institution is in a stronger position to support the use of e-learning. (White & Milne, 2005)

The government strategy and push is often associated with increasing the percentage of courses that have some e-learning component (Ham & Wenmouth, 2007). Institutions may perceive this to be in line with their overriding vision. Bates' belief is that these decisions should be made based on the fact that e-learning tools will best enable the type of learning required for the programme (2000).

2.6.2 Learning Design

Course development will depend on instructional design. This development may also depend on the type of course that is being adapted to an online environment. With

distance courses, flexibility was the most important factor so that students could complete the work in their own time. This often meant that students felt isolated. The introduction of e-learning to distance courses means that the course design and the tutor need to ensure that their use of e-learning guarantees a level of support and a feeling that the student is part of a cohort. If the learning design of the course cannot guarantee this, the student may not succeed. Salmon indicates that "learning cohorts are most important for success" (2005, p. 5). The problem with distance learning is that students only have interaction with the lecturer and the content of the readings, etc. Chickering and Gamson claim that it is not only important to encourage contact with lecturers and students, but also to develop "reciprocity between students" (1987). In a poorly structured course, students may miss out interaction with other students. One key aspect of teaching presence as defined in an article by Shea, Pickett, and Pelz (2003) is that it is not only the lecturers who provide teaching presence, students can learn equally well from each other.

Many traditional distance courses include text-based packs that are mailed to the students. Lecturers who are starting to use e-learning technology can make the mistake of re-creating this online creation. When students have been engaged in course material by the use of a workbook and limited interaction with the lecturer and other students, introducing technology to communicate may not lead to a high level of interaction. If the tutor has no model on which to base good online communication, switching from distance to online will not guarantee the creation of a cohort.

2.6.3 Limitations in Communicating with Technology

One major issue with e-learning is the type of media used. Although many would say that e-learning introduces a number of different media into the delivery of the class, there is still an emphasis on text, particularly in terms of instructions to the students and asynchronous discussion. This emphasis may disadvantage some students as they may have a preference for learning opportunities that are more aural or visual. Additionally, there is a concern that e-learning is not an appropriate method of communication. Some do not see that technology can be used to communicate with students at as deep a level as face-to-face communication. Many identify lack of

body language leading to misunderstandings because students/lecturers can not see non-verbal cues. Without "non-verbal communication cues", they develop other methods to communicate emotion or familiarity (Garrison & Anderson, 2003, pp. 49-50).

If the limitations of online communication can be identified early, they may not be as significant. The staff member may include some initial resource or activity that clearly outlines the differences between online communications and face-to-face communications. It could even take the form of negotiating a "class contract" in the same way that rules for communication could occur in a face-to-face situation. In some cases, this resource may only be a scaffold for those who have never experienced learning online, particularly if the staff member and students were to spend some of their time in a face-to-face situation as would be the case of a blended learning environment. Even as a scaffold this type of resource or activity would be very valuable. Salmon identifies "online socialisation" (2005, p. 20) as one of the keys stages at the beginning of an online course. It provides opportunities to build trust and to build a community.

The fact that the lecturer has incorporated some basic rules of communication indicates respect for students, which in turn indicates knowledge of what is highly valued by students (Prebble et al., 2005). Often breaking down components of an effective online course highlights good teaching practice, practices that would be highly valued and effective in a face-to-face classroom (Salmon, 2005). Those who make good online teachers have often been very effective classroom teachers. There has been much written about the importance of learning design as the single important factor affecting student success. Others claim that teaching presence and interaction is more important so the importance of the lecturers in facilitating the course can not be underestimated (Salmon, 2005; Shea et al., 2003).

Reluctance to move up the levels of e-learning use may not be limited to issues of workload that were identified earlier in this chapter. It may also be a lack of recognition that lectures are not always the best option for sharing information and content with students. Apart from any initial anxiety regarding speaking in front of groups of students early in their teaching career, many lecturers feel that a lecture is

the easiest form of teaching. Clearly, many would identify it as the most effective form as the ratio of teaching staff to students would be the most manageable. Here the question remains though, is this good quality education? Lectures have been determined to be quite useful in presenting new ideas (Prebble et al., 2005), but they may not always promote deep learning or provide opportunities for study to assimilate learning.

Fundamental to all these concepts is that of teaching and learning. In the initial rush of institutions to adopt e-learning, the first step was to implement a learning management system. The focus was always on technology adoption with a great deal of consideration as to what if any pedagogical issues might arise. Perhaps this was a lack of understanding by lecturers about what the technology could do. In some quarters, it is well understood that technology is only ever a tool that lecturers use to carry out functions that teachers have always done, sharing information and communicating with their students. Although much of tertiary education recognises the role of learning management systems or for that matter any other technology is only to provide a medium to communicate, there are still many pockets of lecturers who are either confused by technology's role or more precisely they choose to view it in a narrow way, believing that the technology has more significance than the individuals using it. The author has often heard comments like "I prefer human interaction, not e-learning" (pers. coms.).

Another issue is that of the history of the institution. An Organisation for Economic Co-operation and Development (OECD) survey found that "In most campus-based institutions, the growth of e-learning to date has not challenged the centrality of the face-to-face classroom setting" (2005, p. 12). The uptake was very low at most campus-based institutions and was generally limited to courses within programmes, not full qualifications. Courses that were web-dependent accounted for under 5% of the total courses (Organisation for Economic Co-operation and Development, 2005).

2.6.3.1 Online Readiness

Incorporated in learning design is ensuring either that students have the technical skills they will require for the course or they will acquire them throughout the course. The e-Learning Guidelines provide recommendations regarding the material that is

sent to student prior to their enrolment. The e-Learning Guidelines project that was funded by the e-Learning Collaborative Development Fund identified the importance of the pre-enrolment publications for students who will complete qualifications that will be partially or fully online. It should identify equipment and skills that students will need. The e-Learning Guidelines also identify the need for students to understand the difference between the online learning course and other more traditional learning they might have experienced (Milne, 2006).

The pre-enrolment package may form part of a pre-enrolment process that includes a pre-screening process by interviews, perhaps via email, telephone, online survey or other electronic means. The purpose of the pre-screening is to determine the student's suitability for e-learning. Tyler-Smith (2006) indicates that first time online learners have a great deal of difficulty coping with the technical skills and promotes the concepts of a skills survey. Salmon agrees that the student's ability to cope with the technical skills required is very important to their success in the course, but warns that skills survey may not considered the students' "emotional response to technology" (2005, p. 14). Instead the design of the course should allow students to build on their skills and technical knowledge. She describes a phased approach to the skills required in an online course. Importantly though, this method would still need to sit within an institutional approach to student support in terms of FAQs, library support, technical help desk and learning skills support (Marshall, 2006; Milne, 2006).

2.6.3.2 Funding and Quality

Learning design may not be restricted to individual courses or programmes, but may also be linked to the process used by the institution to develop the courses and programmes. There is a range of opinion on whether or not it is better to fund centrally so economies of scale are maintained or for individual schools to fund their own development (Bates, 2008; Higgins, Prebble, & Suddaby, 2008; Organisation for Economic Co-operation and Development, 2005). The latter option might indicate that they see e-learning not as an institution's responsibility but instead as their own department's responsibility. The issue then becomes one of quality and redundancy of work. There is much debate about whether all lecturers need to be

experts in e-learning. Some opt for champions in their departments, those staff that have enough ICT skills and knowledge of online activities to assist others in their department. This is particularly the case in universities where each faculty may have their own e-learning consultant/ manager (Holtham, 2005). In the vocational institute sector, it tends to be focused more on a central unit which will often sit inside a more general teaching and learning development area. It may also depend upon how funding is allocated. Higgins et al. (2008) discuss the trend over time from lone ranger and pilot funding to more centralised funding.

2.6.3.3 Learning Environments

The significance of classroom and institutional learning environments has been recognised in many studies (Chang & Fisher, 2003; Clayton, 2006; Moos, 1979; Wubbels & Brekelmans, 2005). These studies identify a number of different instruments that can be used to determine the effectiveness of classrooms and educational institutions (Fisher & Fraser, 1990).

Work undertaken by Moos in a number of institutions, including school classrooms and university residences led to his proposal of three psycho-social dimensions: personal relationships, personal development and finally the dimension of system maintenance and system change (1979). The first category relates to the nature of the relationships between individuals within an institutional environment. The second category relates to personal growth or enhancement. The final category identifies whether or not the system is orderly and how responsive it is to change.

The extensive research in learning environments indicates that a study of the relationship and communication between lecturers and students would be vital to determine the effectiveness of online learning (Fisher & Fraser, 1990; Wubbels & Brekelmans, 2005). The importance of these concepts relating to personal relationship are also in e-learning literature as indicated in the discussions of learning design and communication in the previous sections, particularly in the concept of teaching presence as outlined in the study by Shea et al. (2003). Course design and the lecturers' communication strategy have considerable impact on the teaching presence and as a result the relationship between lecturer and student. Therefore' the lecturer's perspective of how these components work in his/her class should be

included in any instrument that relates to Moos' personal relationships dimension. There have been instruments created to assess the effectiveness of online classes, but these generally relate to the student perspective (e.g., Chang & Fisher, 2003; Clayton, 2006).

Moos' dimension of personal development can be explored through the professional development that has been undertaken by the lecturers. Additionally, any study relating to Moos' dimension of system change and maintenance needs to examine how the institution copes with changes. Professional development is one approach an institution may take to implement change. The next section identifies issues that relate to professional development and e-learning success..

2.6.4 Professional Development

What forms of professional development are useful in terms of changes to teaching and student outcomes? Many have identified the fact that there are a number of different types or styles of professional development activities. Prebble et al. (2005) identified that some types of professional development activities linked more closely to improved student outcomes, even though it was problematic to determine how to quantify this link. In a study of the current literature at the time, the authors identified the fact that professional (or as they referred to it, academic) development had to be seen as two separate links. First there is the link between academic development and teaching practice, and then there is the link between teaching practice and student outcomes.

The types of professional development identified in the study ranged from short term training to longer term courses in some cases leading to a qualification (Prebble et al., 2005).

Short courses are recognised as appropriate for providing new skills (Prebble et al., 2005). E-learning training and development would generally fall into two categories "hard" and "soft" skills as identified by Clayton (pers. coms., February 9, 2007). The hard skills would be focused on technology skills, that is how to add a posting to a discussion forum, whereas soft skills would be concerned with the actual facilitation of a discussion forum and the pedagogy underpinning it. Hard skills such as basic

technology skills could well be presented in a short course, where training was offered on how to use an LMS. (Hegarty et al., 2005). Training in technical skills is often limited to a few hours training. Often this type of training is most effective when introducing e-learning tools as a supplement to face-to-face training, where staff's interest lies simply in providing electronic copies of handouts to their students as a way of helping administrate their courses.

In the study by Hegarty et al. (2005), some staff from the participating institutions opted to take a shorter course, particularly at a introductory level as part of their professional development, rather than undertake a full qualification. Lecturers may see this as the first step in a move to e-learning. It is the often the scaffolding they need before they move on to see e-learning environment as an option for their teaching. Further development on teaching concepts and methodologies could be covered in the course based/qualification based professional development (Hegarty et al., 2005).

One of the disadvantages with this form of training is that lecturers may feel that skills gained in many of the workshops are forgotten (Hegarty et al., 2005). Another disadvantage is that is removes staff from their own department area. Prebble et al. indicated that an "in-situ" approach may work better, where training would occur within a department (2005, p. 11). Working within a departmental context may mean that staff are more liking to embrace e-learning (Wilson, 2004) and be able to work alongside mentors in their department (Wilson & Stacey, 2004).

Lecturers often value "informal staff development" opportunities where they can talk with and learn from their peers in their department groups. In many cases, lecturers were able to develop their own courses either independently or with assistance from their peers, or champions within their departments (Hegarty et al., 2005; Holtham, 2005). In spite of the benefits though, there is often a concern about approaching other lecturers for assistance, because it wasn't their dedicated job to do that (Hegarty et al., 2005). This may lead to the "lone ranger" approach where the individual completes all the course development themselves, becoming not only a subject expert but also a technical expert (Bates, 2000).

Hegarty et al.'s study provided an extensive list of informal professional development used by the institutions involved in their study. This professional development was split into three categories: 1) peer support; 2) expert support and 3) individual pursuits.

- The first category, peer support included newsletters, assistance from those who were early-adopters of the software; model courses; team teaching; sharing resources, online staff discussion groups

- The second category, expert support, through local support with e-learning experts, conference attendance and background reading on e-learning.

- The third category, individual pursuits, which could be described as the lone ranger approach where individuals access information on the Internet and manuals. (Hegarty et al., 2005)

Recent research (Hegarty et al., 2005, p. 65) shows that working in project teams may be the best approach to developing online courses. This ranged from an informal team of one or two to a more formalized agreement where lecturers were involved as subject matter experts. It provides professional development opportunities for staff to learn in the context of their own subject area. In the study, lecturers indicated that they enjoyed the team approach because it provided different perspectives and meant individuals could work to their strengths. As staff are working within their own content area while they are designing resources and activities and have confidence in that knowledge, they are not as intimidated learning new skills. More than half the participants in the study by Hegarty et al. indicated that they liked working in a team situation. An approach that proves popular with staff may in turn have a flow on effect to improved student outcomes, retention and success (Prebble et al., 2005).

This project based approach could also be identified as consulting or mentoring as the lecturer would be working alongside an e-learning "expert". Prebble, et al (2005) recognises the importance of one-to-one consulting, particularly in terms of the feedback the lecturer would receive from the consultant. Close analysis of learning resources and activities by another teaching professional would provide both an evaluation of the teaching and learning as well as a structure for interpreting the

feedback. This process would enable lecturers to analyse their own teaching and learning approaches. The interpretation of the feedback would lead to reflective practice, identified as the very component of bringing about change in teaching practice (Prebble et al., 2005).

This does not imply that other types of professional development are not beneficial. The types of professional development throughout this section range from very practical skills based to activities like mentoring, project work and e-learning qualifications. The motivation to attend professional development courses may come from an interest in learning about e-learning or additionally from those who were responsible for directing e-learning in their department or subject area. Often though studying for e-learning qualifications generally comes second to studying in their own discipline area (Hegarty et al., 2005). It can be very difficult to motivate lecturers to undertake additional professional development in e-learning. Some institutions have looked to use e-learning in compulsory professional development as one method for lecturers to incorporate effective use of e-learning in their courses (Wilson, 2004).

In the vocational institute sector, teaching staff progression is generally linked to a certificate in tertiary or adult teaching and learning. In many vocational institutes, the expectation is that new lecturers would commence this study within the first two years of their employment (Association of Staff in Tertiary Education, 2007). Sector experience has highlighted some issues when trying to incorporate e-learning into this area:

- Non completion of the tertiary teaching qualification
- There may not be use of online learning for lecturers to observe and model and subsequently staff can not experience online learning firsthand (White & Milne, 2005).
- If there is use of online teaching and learning, the model may not be particularly good teaching practice (Hegarty et al., 2005).

Being an online student in a well designed and facilitated online course is a very effective means of providing professional development in e-learning. It was

noteworthy that where lecturers had experienced e-learning as a student, they were more able to see the relevance of the different tools and to use those tools effectively. (White & Milne, 2005)

For longer serving staff, there may not have been specific training in online teaching and learning at the time they completed the qualification. In some cases, motivating staff to use e-learning may need to come from other areas of the institutions outside the central e-learning unit. Other forms of modelling can come from the managers. One manager started using e-learning so that his staff would follow his lead (Hegarty et al., 2005).

Hegarty et al. report problems with support which also include tension between those supporting the e-learning systems and lecturers. In some cases, e-learning staff felt it was their responsibility to research new technology and inform lecturers (2005). Therefore, lecturers were discouraged from experimenting with or researching new software and technology. It also highlighted the issue of what level lecturers should become involved in with the use of software for designing e-learning activities. In some cases noted by Hegarty et al., staff attended sessions in the use of web authoring software. As the focus of the session was on creating web pages, there was no training in how to integrate this into an existing e-learning course. Even when these types of more technical training session contain a pedagogy focus, unless the technical skills are maintained through subsequent sessions, lecturers can often get disaffected with the technology. As a consequence, any developments on their course will then stall. This is particularly true when lecturers are assisted by technical staff to create e-learning resources. Unless there is an agreement about the maintenance of these resources, lecturers will not be able to make changes and the resources are discarded. Some staff felt that they were "very directed but not particularly supported" (2005, p. 75), in other cases staff felt well supported. In some cases, there may even be existing resources available through collaborative repositories within the institution or available through open educational resources. Surprisingly, lecturers seem reluctant to use these resources, worried they may not be able to adapt or contextualise the resources to their courses (Campbell, 2003).

Anecdotal evidence would indicate that it may be a combination of professional development approaches. These approaches include short courses to introduce specific skills, project based work to look at instructional design of the overall programme of study, and longer term courses to experience online learning and observe good models of effective online teaching. In some institutions, training sessions were not offered as many staff preferred to have one-to-one training. There was a range of levels of institutional support, ranging from those based around incentive, for example release time and funding to cases where extensive staff and course development were offered. The minimum support was identified as technical and staff development in technical skills and basic online pedagogy (Hegarty et al., 2005).

Other considerations relate to the timing of the professional development, some participants in the Hegarty et al. study indicated that the "timing of the support was important" (2005, p. 13). Different time frames were used for different types of professional development. Pedagogical support was best suited before the start of the course, whereas technical support was most beneficial in a just-in-time format (2005).

Another key aspect was that when the professional development was finished (whether it be formal or informal), the interaction between participants finished. Many staff felt there was a need for continued interaction and support staff particularly valued attendance at training sessions if there was the opportunity for this ongoing support (Hegarty et al., 2005).

In some cases, lecturers felt that the formal professional development focused more on the technical aspects of e-learning rather how the more pedagogical issues of how e-learning might be used in a course (Ham & Wenmouth, 2007; Hegarty et al., 2005; Prebble et al., 2005).

2.7 EVALUATION

The next level of the model outlined in Anderson et. al's report (2006) is that of transformation of education, central to this are the concepts of research and evaluation. The TeLRF and eCDF funded research and evaluation of the New

Zealand tertiary education sector. The research provided an opportunity to examine the level of quality assurance in the sector. In his e-Maturity Model, Marshall identifies a number of indicators for quality assurance. One study that formed part of the TeLRF was that undertaken by Marshall from the Victoria University of Wellington. In his initial study, he identified an eMaturity Model, which outlines a number of different processes that lead to successful preparation, implementation, delivery and evaluation of e-learning (2005).

Marshall's original report and model has been modified, through additional funding as part of TeLRF (2006) and through subsequent projects discussed below. The Tertiary Education Commission funded Distance and Flexible Education Group used the eMaturity Model to measure the e-maturity of each of the vocational institutes. The study was to take "a snapshot of the standard of infrastructure to support e-learning in ITPs" (Tertiary Education Commission, 2008, p. 1). The tool uses a questionnaire format to document the preparation, delivery and evaluation of three courses identified as examples of the institution's approach to e-learning. In capturing this information, the questionnaire also captures more general information about the institutional level support and funding of e-learning in addition to technical infrastructure and support. The central premise of Marshall's model is "The underlying idea is that the ability of an institution to be effective in a particular area of work is dependent on their capability to engage in high quality processes that are reproducible and able to be sustained and built upon" (Marshall, 2005, p. 17). Therefore, a concentrated institutional approach would create this level of quality in courses that used e-learning technology.

Marshall's model has also recently been used in the United Kingdom by 40 out of the 43 Scottish Colleges. (In Scotland, a college is the closest equivalent to New Zealand's vocational institutes.). The colleges were involved in a 'Developmental Self-Audit' (DSA) which was adapted from Marshall's eMaturity Model (Sero Consulting, 2007, p. 3). One of the areas that scored the highest level of capability is infrastructure, indicating that is where much of the investment is occurring. Expenditure on infrastructure was generally associated with the establishment of an LMS. The least capable area is in evaluation particularly in terms of how the data collected from surveys is used to provide feedback on the course design and e-

learning tools. This is an interesting conundrum; although e-learning courses often undergo more scrutiny throughout the development process but historically the evaluation process has been problematic as the courses are generally only conducted using standard institutional surveys which may not address e-learning aspects of the course (Chao, Saj, & Tessier, 2006).

Marshall's model is very exhaustive in terms of looking at the processes and sub processes that assess the institutions, looking particularly at both institutional and course level evidence. However, the information that is collected is not necessarily indicative of the levels of e-learning use, for example, whether or not the course has online participation. It asks the percentage of different types of communications and measures whether or not students are informed about the types of communication. It looks at the types and quality of professional development but does not distinguish between training for web-supported and web based e-learning.

The other area that the e-Maturity Model does not address is the lecturer's perception of how effective the use of e-learning is. Although it does address what type of programme is being assessed, it does not address how extensively the e-learning use is within the rest of the programme. Neither does it explore the demographics of students of each of the courses.

In terms of quality and evaluation, it may be assumed that if institutions are following a systematic approach to ensure that e-learning courses are developed with quality processes, these processes should be consistent regardless of whether the course uses e-learning tools. This may or not be the case as it assumes that quality assurance at an institutional level will mean that it flows on to the lecturers. The model looks at only three courses, as it assumed that the processes used to develop/teach these courses would be standardised across each of the institution's courses that use e-learning. It is not certain how these courses are selected and they may not accurately reflect what is happening at an institution wide level. (Sero Consulting, 2007) Although this is important in terms of knowing that it has gone through the institution's evaluation process, for smaller institutions, it may not be giving a true picture of the institution. Often the current student evaluation questionnaires do not specifically address e-learning aspects of the course. Marshall

recommends the use of questions that deal specifically with the evaluation of the e-learning components of the course (2006).

2.8 STUDENT FACTORS

There is also the possibility that the student results have more to do with events in the students' lives. Considering the myriad of issues that may affect students during the course of their study, their "life interruptions" may be more significant than learning design or instructional capability of the lecturers. This is also a large amount of literature concerning the demographics of students that would best suit e-learning. Some students may be more likely to succeed in an online learning environment (Carr, 2000).

The tertiary reforms in New Zealand have implications for funding and retention of students. Previously funding has been based solely on number of enrolments, but future changes will tie funding to the number of students who actually complete the course. Retention refers to whether or not the student finishes the course. This can be manifested by a number of different behaviours, for example, sitting a final exam, attending until the end of the course, or completing all of the required work. Success is defined as passing the course. Retention refers to whether or not a student is still attending. Completion is whether or not a student has completed all of the requirements for the qualification (Scott, 2005). Success is regarded as the successful completion of a course/qualification.

In terms of the vocational sector in New Zealand, it is important to consider retention rates at sub degree level as vocational institutes' qualifications are predominantly at that level. Even with the recent move of some vocational institutes to offer undergraduate, post graduate and masters' level qualifications, the large majority of courses are at certificate and diploma level. Many international studies look at undergraduate completion rates and normally do not consider levels below a degree programme. The study that Scott completed for the New Zealand Ministry of Education explored rates of completion for certificate and diploma level studies. Scott's study found that the certificate qualifications had the lowest completion rate even though they take the least amount of time to complete. Scott indicated this may be due to a number of factors including the fact that "more students at a sub-degree

level are studying part-time, and have work, family or other commitments" (Scott, 2005, p. 7). Diploma level retention is low as well with 64% of students leaving without completing their qualification (Scott, 2005). More than half of those studying at tertiary level in New Zealand are studying at certificate and diploma level. Scott indicates that this may be a result of the government's push toward lifelong learning. This approach has seen more open access to enrolment, particularly to those groups who not traditionally undertake tertiary study. This trend is mirrored overseas. Indications from other countries though are that those qualifications that attract non-traditional students are more likely to have higher drop-out rates (Goddard, 2003).

Scott also indicated that at a sub-qualification level, for example at a course level (or whatever the nomenclature such as paper or module), the completion rates are much higher. Logically it is much easier to stay focused for one course than a whole qualification. What implications do these retention rates have for online courses and qualifications as opposed to face-to-face courses and qualifications? The trouble with any comparison is matching like with like. The Scott survey does not distinguish between part-time or full time, online/distance or face-to-face.

At the time of writing her often quoted article "*As distance education comes of age, the challenge is keeping the students"*, Carr (2000) highlighted the lack of extensive USA national statistics in drop out rates of distance students, but that individual course or institutional studies that have been performed indicate that the retention rate for online students is not as high as face-to-face students. Many placed that figure at 10%-20% (Carr, 2000). One such study, based on a direct comparison between online and face-to-face economics at Michigan State University found that the face-to-face students achieved higher results than students who studied partially or fully online (Brown & Liedholm, 2002). However, the courses in this study had two different lecturers teaching the courses.

The New Zealand Ministry of Education identify the fact a strong retention rate may be an indicator of quality of the course and institution. Importantly though they also state that there many factors in terms of retaining students and that retention must be considered in the context of all these factors (Ministry of Education, 2007d). Scott's

study (2005) discusses this issue and makes some comment about how the success is measured.

This view is reinforced in Tyler-Smith's article (2006) regarding attrition in first time e-learners. Rather than discuss the many outside issues that may affect student retention rates at length, Tyler-Smith's study identifies what factors might be considered important for engaging students and for assessing cost effectiveness of online learning compared with classroom-based. Student online readiness is one area that could contribute to student success. Tyler-Smith (2006) indicates that the student workload in e-learning courses is very high if it is the student's first time in studying online. Diaz (2002) reinforces the concept of student readiness and goes further to say that teaching staff readiness is also vital.

Scott's survey indicates that students who are under 25 years old are more likely to complete their qualification (2005) As this study does not distinguish between those students completing their qualification online, it can not be assumed that this would be more likely to reflect campus based students patterns. However, if that is the case, this contrasts with overseas studies where demographic data have been collected that showed that more mature students are more likely to succeed at distance or online course (Allen & Seaman, 2006).

There have been several studies that discuss gender an online learning in terms of its effect. Some studies have focused on the gender of the lecturers and their likelihood of adoption of e-learning (Mitchell et al., 2005). Others have focused on how gender affects students' perception of the social presence of their courses (Richardson & Swan, 2003). One study focused particularly on activities that might benefit women in an online environment (American Association of University Women Educational Foundation Commission, 2000). Lapadat (2007) indicates that there is mixed opinion regarding the importance of gender in online learning. One study explored gender differences in students' postings to a discussion forum (Rovai & Barnum cited in Lapadat, 2007). Although there was no difference in the number of postings, the differences occurred in tone of the message and the type of messages with women being more encouraging and men more factual. Gender may only have an effect on students' approach to specific online activities.

2.8.1 What are Student Preferences and Motivations?

Some students do seem to prefer attending lectures. But attendance is a relative word as being physically present does not guarantee that the students are actually engaged in the topic. Traditionally, education has been focused around a campus, is this the way it should continue to be? Do students have hidden agendas for wanting to come to campus? Is it the only way to promote social interaction? Do they have to attend class to be motivated or can that motivation be achieved through an online environment. There are many factors for motivation; as indicated previously it is difficult to assign one variable as having more importance.

As previously discussed in this chapter, students often see e-learning as self-paced learning where they have a choice of where and when they complete activities. This is the concept of asynchronous learning, where students do not have to access an activity at the same time (Anderson, 2004). However, it does not necessarily imply that the students can choose deadlines for completion of tasks. For example, the staff member may set a deadline for researching a topic in order that students may participate in a discussion forum. The expectation is that the students will all be prepared to participate during a set time period, for example a week or two and will need to have completed any self directed work.

If students are moving through at their own pace, does this mean that they will not have a cohort? It is important here to consider what a cohort is and what purpose it serves, particularly in terms of supporting students. A cohort generally implies a group of individuals who are sharing similar learning experiences. Working in a cohort provides feedback and maintains motivation for the student to participate and complete the course. Conrad discusses the fact that community is important to student success (2005). Prompt feedback is highly valued by students (Prebble et al., 2005). Does the feedback always have to come from the lecturers? Often students can receive feedback through their participation in activities for example like online quizzes or structured online lessons. They can also receive feedback from other students. This type of feedback can be very helpful and at a more appropriate level, because of the students' similar experiences (Curtis & Lawson, 2001).

2.9 CONCLUSIONS OF THE LITERATURE REVIEW

There have been a considerable number of studies in the area of e-learning over recent years. Much of the recent research though has been about the lack of e-learning adoption by lecturers and exploring avenues to facilitate further adoption. As previously discussed, the issue is not so much about the number of lecturers adopting e-learning, but more what type of programmes should be using e-learning. This study proposes to look at the lecturers who have implemented e-learning. By determining those who have implemented e-learning and what level of e-learning implementation, the study can explore a profile of these lecturers and can expand the work of a limited number of studies that have focused on staff who have already started using e-learning. The profile will reflect what programmes they work with, what qualification levels they teach, and explore aspects of their teaching philosophy. This study proposes to complete a stock take of what programmes are using e-learning. It also proposes to determine the lecturers' perceptions about the effect their use of e-learning tools has on their students. It will achieve this by building on the literature to explore how an institution's professional development has supported the lecturers' use of e-learning and in turn its effect on students' success. More generally, the study will contribute to current knowledge about e-learning and may also help identify additional areas for investigation, particularly in the tertiary sector.

CHAPTER 3
METHODOLOGY

The purpose of the research reported in this thesis was to explore the impact of a number of factors on lecturers' perception of their students' success involved in e-learning courses. The study was conducted to answer fundamental questions by identifying current trends in the vocational institutes sector to answer questions about what types of courses use e-learning, the level of its use within these courses and what types of learners are succeeding in e-learning courses.

This chapter outlines the variety of methods used within this study. As discussed in the previous chapter, e-learning is an approach that covers different levels of an institution. In order to get a balanced perspective on the current situation in the polytechnic sector, it was necessary to obtain information from individuals with different roles in those institutions. As the pivotal question was about whether or not e-learning is always a good option for all levels, the data needed to include factors that affect the quality of e-learning as outlined in the literature review. These factors include: lecturer capability, workload, and teaching practices in addition to student age and gender (Bright, 2008; Lapadat, 2007; Shea et al., 2003). Therefore, it was necessary to collect these data from those that were teaching using e-learning tools. Other issues of quality relate to the support and professional development that tutors receive in e-learning (Hegarty et al., 2005; Prebble et al., 2005; Wilson & Stacey, 2004). For this reason, feedback from e-learning managers was also required.

Data collected were both qualitative and quantitative in nature. As indicated above the data were collected from two different groups: e-learning managers and lecturers using e-learning. Along with the literature review in Chapter Two, this forms a triangulation of sources as indicated in Figure 3.1. An adaptation of this figure was originally included in emails to provide background information to the e-learning managers and provided them with an example of how the author approached the study.

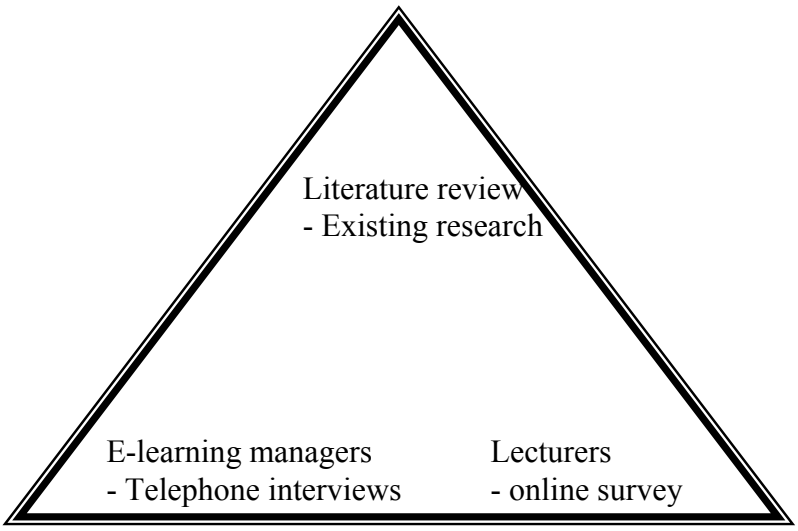

Figure 3.1. Triangulation of sources

3.1 RATIONALE FOR THE SELECTION OF DATA COLLECTION METHODS

Denzin (1997) indicates that triangulation is the "application and combination of several research methodologies in the study of the same phenomenon" (p. 511). It is used to overcome bias in the phenomenon being studied. Triangulation recognises that there are "inherent weaknesses" (p. 511) in the research methods used in qualitative research. As stated by Denzin (1997), the social world is constantly changing for both the researcher and the research participants, so no single research tool is able to capture the information about the phenomenon. Still other educational researchers see triangulation as a method to build evidence and verification into the data-gathering process. Triangulation also requires researchers to be "explicit about the research process" (Miles & Huberman as cited in Mathison, 1988, p. 16).

The two types of triangulation in this study are data triangulation and method triangulation. Data triangulation indicates that more than one individual or groups of individuals is used in the data collection phase (Denzin, 1997). As indicated in Figure 3.1, the sources are previous research into this field of study, the lecturers using e-learning tools in their vocational/technical institutes and finally the e-learning managers in those institutions.

Method triangulation describes the use of different types of methods (Denzin, 1997). The two different methods used in this research were questionnaire and interview. As the interviews were conducted with e-learning managers and the questionnaires were completed by lecturers, it cannot be assumed that the final analyses led to convergent themes and that some differences are clearly identified. However, the use of the two triangulation types allows the researcher to study why these differences occur (Patton as cited in Mathison, 1988).

The original intention was for the questions used in the interviews to be sent out as a questionnaire. However, it was evident that an interview would lead to more in-depth responses for the e-learning managers. As such, the selection did not follow the traditional grounded theory approach where data from an initial sample are analysed and further sampling is undertaken until the researcher deems that the sampling is complete. Instead the sample of e-learning managers was limited due to time and consent restrictions. Therefore, the grounded theory approach was used for the analysis of the interviews. Further discussion of this approach is discussed in Section 3.8.1 E-learning Managers' Interviews.

3.1.1 Planning the Interview Process

The original intention was for questions to be presented as a document that would be sent through the email so that the e-learning managers could complete it and email it back. Following feedback from the testing panel regarding the open-ended format of the questions and the slight chance that the questions would be misinterpreted, it was decided instead to use them in interviews. In addition to ensuring that all aspects of the questions were understood, the interview process allows for more probing questions into the topic and allows for a more extensive capture of ideas (Cohen, Manion, & Morrison, 2007; McCracken, 1993; Punch, 2005).

The interview was originally intended simply to establish a baseline of the support that is provided at the institution and contrast this with the lecturers' responses from the online survey. However, as the interviewing process progressed, it became apparent that there was a wealth of rich data that was coming from the interviews that could be used to link themes and topics. These relationships may then be used to establish new theories regarding the use of e-learning and how it applies to student

success. This is the basic concept of grounded theory. According to Strauss and Corbin (1990, 1998), grounded theory allows the researcher the opportunity to "build rather than just test theory"(Strauss & Corbin, 1990, 1998, p. 57). It also gives the research a structure that can be considered "good science" (Strauss & Corbin, 1990, 1998, p. 27) and therefore adds validity to the research. The analysis of grounded theory occurs through the process of different levels of coding. Coding is defined by Strauss and Corbin as the act of finding common themes. Strauss and Corbin (1990, 1998) go on to stress that it is not possible to report all the data so it is crucial to reduce it by finding these common themes. The method allows the researcher to interpret the data and so build the theory.

Telephone interviews facilitated gathering information from geographically distance sources. The questions were emailed through as a document to the interviewees before the interview was conducted. It was formatted in a way that allowed them to make initial notes on the document or annotations throughout the interview.

Interviews were conducted through IP telephony, which allowed for the interviews to be recorded for later transcription. The researcher was concerned that often straight transcription of participant responses can be stilted or may not provide a clear picture of what they originally intended with their response. Additionally, although the questions were field tested, some of the interviewee discussion topics overlapped over several questions. In order to overcome these difficulties, if the transcript did not appear coherent, the researcher would paraphrase this portion of the response and check the transcript through an email conversation with the interviewee. Giving the interviewee the opportunity for feedback on the transcribed text meant they were able to make suggestions for changes to better reflect the original intention of their responses. This in turn served to validate their responses.

Once the text was agreed upon, it was formatted for use with Nvivo software. This software allows for facilitating coding against a grounded theory method (Bringer et al., 2006). This process of coding used in this study is discussed in Section 3.8.1.1.

3.1.2 Development of the Lecturers' Online Survey

There are a number of different research instruments that have been used to provide a picture of web based learning environments, for example, *Web Based Learning Environment Inventory* (*WEBLEI*) (Chang & Fisher, 2003), *Online Learning Environment Survey* (*OLLES*) (Clayton, 2006). Other instruments such as the *Questionnaire on Teacher Interaction* (*QTI*) (Wubbels & Brekelmans, 2005) and *School Level Environment Questionnaire* (*SLEQ*) (Fisher & Fraser, 1990) also have merits with perhaps the SLEQ the closest suited to the research interests of the author, but did not have specific questions about teaching specifically related to the use of technology. Ideally, it was preferred to use one of these instruments as they have demonstrated validity and reliability. However, they did not cover the specific data that the researcher had identified in the research questions. The data were not based specifically on the student's perception of the web based learning environment, but more on the elements and the base that make up this learning environment – the lecturers' professional development background and approach to teaching. Consequently, it was decided to create a new research instrument that would complement the information gained from the e-learning managers' interviews. The following section describes the creation and structure of this instrument with a rationale provided for the selection of each scale and item.

The online format was selected fundamentally so that participants from institutions spread throughout New Zealand could participate. The other reason for its use was an incentive for the participants to have confidence in the suitability of the study. The use of a paper-based survey may not have inspired the same level of confidence. It was interesting to note that there was an offer of providing a paper-based survey, but none of the participants requested one, obviously preferring to complete the survey online

These scales and items are based loosely in format on a number of research instruments that have been modelled in recent years, particularly the School Level Evaluation Questionnaire (SLEQ). This questionnaire was developed and tested over a number of years and therefore was deemed to be a useful instrument. This instrument was created by Rentoul and has been used to gauge teachers' perceptions

of the teaching environment they work in(Rentoul & Fraser, 1983). The researcher attempted to use a similar tone in each of the statements in order for lecturers to provide a practical approach in categorising their approach to e-learning and learning in general. This tone was adapted from the SLEQ based on the fact it would be the best feel and fit for the lecturers as SLEQ had been used with teaching staff.

In the SLEQ, the items are not grouped by scales, but are equally distributed across the questionnaire. Due to the number of questions, the researcher instead chose to group all the items for each of the scales in the same section, so there would be a flow of questions for the participant. The latter approach has been employed in recent learning environment questionnaires, for example, *Contructivist Learning Environment Survey* (*CLES*) (Taylor, Fraser, & Fisher, 1997), *What is Happening in this Class* (*WIHIC*) (Fraser, McRobbie, & Fisher, 1997) and *Technology-Rich Outcomes-Focused Learning Environment Inventory* (*TROFLEI*) (Aldridge, Fraser, & Fisher, 2003).

3.1.3 Basic Scales of the Lecturers' Survey

The lecturers' survey is made up of four scales. The four scales were developed based on themes that became evident from research in the e-learning arena. These themes are:

- Use of E-learning Tools
- Course and Professional Development
- General Teaching Practices
- Communicating with Students

It also became evident that the themes dealt specifically with the lecturers' experiences.

The following section provides a brief overview of the four scales leading to teaching staff perception of student retention and success. It provides further information and explanation about the scales were developed. Figure 3.2 shows the relationship of the scales to the lecturers' perceptions of student retention and success.

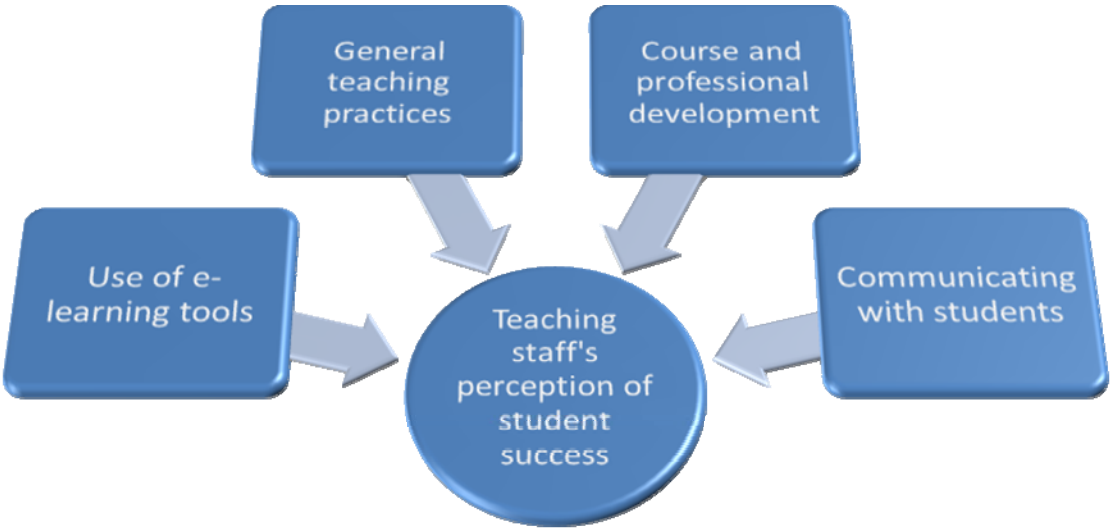

Figure 3.2. Scales as factors in the lecturers' perception of student success.

3.1.3.1 Use of E-learning Tools

In the use of e-learning tools scale, the items provided an opportunity to look at how the lecturers use e-learning, particularly to determine whether they were using e-learning in a web supported format, online or web-based format. From the research, there are many different ways of categorising e-learning use (Ministry of Education, 2005; Organisation for Economic Co-operation and Development, 2005). It was assumed that lecturers would be cognisant of their own use but not familiar with scales as it was generally the job of the LMS administrator to categorise the e-learning levels and the student database administrator to report on them (Ministry of Education, 2008a).

3.1.3.2 Professional and Course Development

There has been a great deal of research on the effect of professional development, not only in terms of general teaching staff development but also in more e-learning specific development (Hegarty et al., 2005; Prebble et al., 2005; Wilson, 2004; Wilson & Stacey, 2004). As outlined in one study (Hegarty et al., 2005), some of the most common methods for lecturers to gain skills are:

- Becoming self-taught experts
- Working with mentors

- Attending professional development training
- Participating in an online course as a student
- Learning about e-learning tools as a participant in a project team

The scale includes questions which would provide a picture of how experienced the lecturers are and also how much e-learning support they receive. The intention of the questions was to determine if the lecturers were self taught or had completed courses provided by their institutions.

3.1.3.3 General Teaching Practices

The scale on General Teaching Practices provides insight on the lecturers' overall approach to teaching. One study in the literature review discussed professional development strategies that might improve student success (Prebble et al., 2005). These approaches dealt particularly with improving lecturers' approaches to their teaching. This scale focused on the lecturers' attitudes and perceptions of their teaching. Issues they would be focused on might be:

- Currency of resources
- Administration of the course, particularly around assessment information (submission, deadlines)
- Making clear learning outcomes
- Importance of feedback
- Access to learning support and information technology support

The lecturers' attitudes toward these issues might determine their pastoral care approach and what type of relationships they have with the students. Chickering and Gamson (1987) indicate that positive attitudes and perceptions by students might in turn have an effect on their success. The lecturers' practice may also indicate a positive perception and may therefore contribute to student success or at the least the lecturers' perception of their success.

3.1.3.4 Communicating with Students

Communicating with students is often viewed as the most important component of the relationship with students (Chickering & Gamson, 1987; Shea et al., 2003). The theme of communications built upon the lecturers' perceptions that were outlined in the previous scale and provided additional information about how lecturers interact with students. There is considerable overlap between how the lecturers view communication with students and their readiness to teaching using more fully online tools (Salmon, 2005). This area may give some insight into how willing lecturers would be to teach online. As indicated in the literature, having an established communication plan is more likely to result in the lecturers' ability to cope with the teaching load. This scale of the survey intended to determine lecturers' attitudes/approaches to student communication. It would determine what type of feedback they would provide and how it was provided. It would also determine other important perceptions, such as did they see that the technology could help enable communication or did they see it as a barrier? Further it was necessary to gain information about how lecturers used the technology - was it a seamless approach or more an add-on to find some use for the tool itself?

Participants were also invited to make further comments at the end of each of the scales. In addition, there is a final section that provides a profile of the demographics of the students involved in the programmes being taught. The researcher decided to use these themes to form the scales of the research instrument in order to determine how lecturers are using e-learning in their teaching.

3.1.4 Link with Previous Educational Environments

Previous research in educational environments has been based on Moos' three general categories: relationship, personal development and system maintenance and system change. Moos (1979) indicates that these categories relate to the nature of the relationship, the way in which personal growth or enhancement may occur and finally if the system is responsive to change. Table 3.1 indicates how the scales in the lecturers' survey relate to Moos' general categories.

Table 3.1

Description of Scales in Survey and Their Classification According to Moos' Scheme

Scale Name	Description of scale	Sample Item	Moos' General Category
Use of E-learning Tools	Models of e-learning that staff us to provide access to learning activities.	I use the e-learning system to provide feedback on my students' assignments.	System maintenance and change
Course and Professional Development	The way in which lecturers are provided support to develop their skills and to develop courses.	I worked with an e-learning specialist to develop the e-learning components of my course.	Personal development
General Teaching Practices	Explores teaching approach used by staff	The learning outcomes are published for each topic area.	Personal development
Communicating with Students	The models lecturers use to communicate with their students	I encourage my students to ask questions.	Relationship

3.1.5 Format of the Survey

The items in these first four scales use a five–point Likert attitude scale with the following options: Strongly Agree, Agree, Not Sure, Disagree, Strongly Disagree with an option of "Non-Applicable", see example question in Table 3.2 below:

Table 3.2

Likert-type Scale Used in Survey

	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree	N/A
I use the e-learning system to provide access to resources that I also hand out in class.	□	□	□	□	□	□

This type of Likert-type scale was selected as the intention of the survey was to get the lecturers' attitude towards the topics discussed in the items. Likert type scales are very effective in gathering data in an electronic survey (Kelley, 1999). Although there are other ordered scales that measure frequency of teaching behaviour, the intention of this study is only to get a general impression of lecturers approach to different aspects of the themes within the scales, not to complete an in-depth analysis of teaching behaviour as it was not completed by the same number of staff from each of the institutions. Therefore, perceptions were deemed more important than in-depth work patterns such as the number of times the staff used the tools during any given period of time. The option for the Non-Applicable option was included so that the participant did not feel frustrated by having to select an option that was not appropriate.

3.1.5.1 Demographic/Programme Characteristic Section

The questions in the final section use a multiple choice format as these questions generally provide more demographic information than the lecturers' perceptions about their experience with using e-learning tools that were included in the first four scales. The only exception is the lecturers' perception of the effect of e-learning tools on their students' retention and success. This question was included in the last section because it fits more with student and programme demographics than any other scale.

3.2 PARTICIPANTS' SELECTION PROCESS

In New Zealand, there are 20 institutions that are identified as vocational institutes; of this number only 19 were members of ITP New Zealand in 2008. It was determined to only invite participation from those institutions that held this membership as each generally had representation on the ITP New Zealand eLearning Forum.

Letters were sent to the Chief Executives of each of the 19 institutions asking their permission to approach their e-learning manager and the lecturers that were involved in using e-learning tools. (A copy of the letter is included in Appendix A). A total of 13 Chief Executives agreed to have their staff participate in the study. The institutions that took part ranged in size from small regional to large urban based polytechnics. Their programme offerings ranged from certificates to graduate qualifications. The institutions were geographically spread across New Zealand. The reasons given for non-participation from those Chief Executives that declined the invitation were generally due to staff workload. Two institutions requested further ethics information and did not respond after they received the information. Of the remaining four institutions, one never responded, and three declined, citing staff workload. As this study followed the TEC's eMaturity Model (eMM) project by only a few months, this was understandable.

The letters to the Chief Executives included the names of individuals who the author had identified as the institution's "e-learning manager". They were identified as such due to their membership on the ITP New Zealand eLearning Forum. As previously discussed in this study, there are a variety of titles for individuals in this role. The concept of e-learning manager is not that the individual sits at management level, but more that they are the individual with the most direct management of e-learning within their institutions.

Thirteen Chief Executives agreed to participate. A few of the Chief Executives sent a confirmation by return letter. Others simply forwarded the letter to their e-learning managers. Generally, they were the same individuals the researcher identified. These 13 e-learning mangers were then contacted via email with information about the study. (A copy of the email is included in Appendix B).

An additional email was sent to e-learning managers (previously identified and contacted) containing the lecturers' participant information and a link to an online survey tool. They were asked to forward this email to any lecturers in their institution who were using e-learning tools in their institutions. (A copy of the email is included in Appendix C).

The process of collection is presented in Figure 3.3.

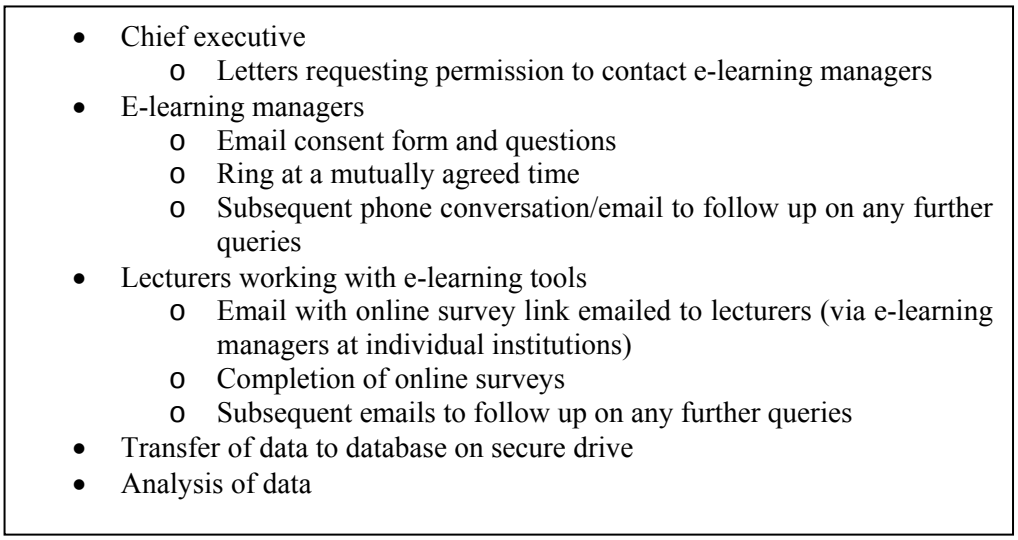

Figure 3.3. Process of data collection.

3.3 ETHICAL ISSUES

This study was approved by Curtin University of Technology as part of the academic acceptance process. This process includes a review by the Human Ethics Committee. Initially, the researcher had intended including a request for statistics on student retention and success for the students involved in programmes that used e-learning tools. Due to the sensitivity of these statistics, the decision was made to only include a question relating to the lecturers' perception of how using e-learning tools had affected their students' retention and success. The researcher has ensured the lecturers that any comments they made about the support they received from their institution would remain totally anonymous. The research gathering process made the aim of the project clear to participants at each level of the institution. As previously discussed, permission was initially obtained from the Chief Executives of the institutions. Additionally, permission from the e-learning managers was obtained

through email acknowledgement. A background to the study and a guarantee of privacy and confidentiality was included in the email to the e-learning managers.

Consent from the lecturers was assumed from their completion of the survey as it was made clear to participants that by proceeding they were acknowledging agreement to be part of the study. A guarantee of privacy and confidentiality was provided to the lecturers in the initial email they received from the institution's e-learning manager as well as in the first screen that appeared on the survey which invited them to take part. If there was a need to associate comments to particular individuals, the participants' names and institution names were changed to maintain their anonymity.

Consideration was given to when the data were collected, ensuring that it did not occur at a time that individuals would be having a higher workload, for example, at the start or end of the semester. The collection was delayed by two months until April 2008, due to the fact that a major project was undertaken by the Tertiary Education Commission in late 2007. The researcher was aware of the workload imposed by the project on e-learning managers and those who were involved with teaching using e-learning.

The completion of the online survey for the lecturers was not too onerous. The issue of voluntary participation on the part of both the e-learning managers and lecturers was considered by the researcher. Two methods were employed to minimise this issue. First, the fact that the lecturers were approached by their e-learning manager meant there may be more incentive. Secondly, participants were offered the opportunity to go into a draw to win movie tickets. The timing of the e-learning managers was arranged at a time that suited them. If any further clarification was required, the e-learning managers were able to email any changes through when it was convenient for them. Feedback from various e-learning managers' return emails indicated that they did not find the process onerous and welcomed the opportunity to examine the topics in detail.

Acknowledgement was provided in a way that maintained anonymity. Consultation between the researcher and the supervisor of the thesis occurred throughout the

writing of the report to ensure that the findings would not identify individuals' names to their institutions.

Data were collected from the lecturers who teach using e-learning tools. The data were collected through the use of online surveys. The option to complete the survey by a paper-based questionnaire was also made available, although none of the participants requested it. A pre-test of the questionnaire was completed by a panel of experts from a variety of e-learning and research backgrounds.

The literature outlined in Chapter 2 indicates that there are a number of factors that affect the success of students using e-learning in their courses (Bates, 2000; Marshall, 2006; Mitchell et al., 2005; Shea et al., 2003; White & Milne, 2005). There are many other studies that focus on student satisfaction and not on student success. This approach looks at background factors that might affect students' success, including the support that lecturers receive and then their approach to e-learning. To ensure that results are accurate, it is important to note whether or not lecturers are well versed in using e-learning. Much of the data collected from the e-learning managers were to provide a background and baseline for lecturers' perception. Lecturers need to be well supported, with consideration made for: professional development, workload issues explored and more fundamentally, that the organisation has the right mix of process and funding. As previously stated, formal statistics concerning student success were deemed to be too sensitive. Instead lecturers were asked to identify if they perceived a change in the retention and success of their students based on their use of e-learning in their teaching.

3.4 THE E-LEARNING MANAGER'S QUESTIONS

In order to frame the questions, consideration was give as to what aspects of the institution an e-learning manager may have some influence on and have knowledge of. These themes were developed from the main issues researched in the initial stages of the literature review and were included to establish baseline of support and professional development. Consequently, the questions were focused on professional development and organisational support for e-learning which includes technical assistance and quality measures. The preliminary questions were to get an idea of the institution's use of e-learning and the types of deliveries offered. It also covered

aspects of learner support issues. Level of support was measured by asking the e-learning managers what type of support students and lecturers receive from their institutions, for example, through professional development, release time or other incentives. Additionally, information about e-learning use in terms of categorisation of e-learning levels was included as the institution's forays into different types of distance learning to identify how extensive this type of learning was in the institution.

The following section outlines the questions used in the e-learning managers' interviews and provides the rationale of why these questions were included. Each question is identified with a theme. The theme is included in brackets following the question.

1. What percentage of your institution's courses would be classified as traditional distance courses? (institutional approach to e-learning and delivery options)

   The intention of the first question is to determine whether the institution has a history of distance education. As discussed in the literature review, campus based institutions are less likely to adopt high levels of online user (Organisation for Economic Co-operation and Development, 2005). If an institution has offered a number of courses and programmes by distance, it may have a different approach to professional development. The institution may also have a broader understanding of issues that face lecturers and students in an e-learning environment, so it may affect their approach to e-learning.

2. Of the courses that use e-learning, what percentage would be classified as each of the following?

   - [No web-access]
   - Web-supported - online access by students is optional
   - Web-enhanced - online access by students is expected but not absolutely required.

- Web-based - online access by students is essential to undertaking the course.

(institutional approach to e-learning and delivery options)

This question refers to the MoE Internet Use Classification. This scale was defined and contrasted with the OECD classification in the literature review, see Section 2.2. The intention of this question is to investigate how familiar e-learning managers are with the method and to hear their concerns about any ambiguities that they see as inherent in this classification. If the interviewee requested clarification of the levels, the researcher would expand on them in the following way:

- No web access

  No web access would indicate that there was no information, resources or activities loaded on the learning management system for that course, students may use some form of technology in class but it may be predominately application based like word processing or spreadsheets.

- Web access for face-to-face classes

  The next level as previously discussed in Chapter 2 would involve some resources and perhaps activities like quizzes might be loaded on the learning management system, but it is usually just used as a place to provide resources that were handed out in class time. The category would include to courses that were face-to-face.

- Minimal web requirements, for example assignments are submitted through the e-learning management system. Minimal online assessments.

  The following category would provide some components that need to be completed online. This might be the submission of assignments using an online tool through the learning management system. Additionally, there may be minimal summative assessments where a quiz or test may be completed online.

- Fully online, where all assignments are submitted through the e-learning management system, feedback is provided online and discussion is conducted online

The final category describes a course that is taken fully online, generally through a learning management system. Although there may be occasional face to face meetings, these may be used as orientation sessions. The large majority of student/student, lecturer/student interaction is through online tools.

This question also provides a discussion point with e-learning managers about the use of the Ministry's classification. It could provide additional information about how much the e-learning manager knew about the classification and the level of agreement with the different categories. As discussed in the literature review in Section 2.2.2, there may not be consensus on these terms. If needed, further clarification was provided to the interviewees using definitions that were generally accepted in the tertiary e-learning sector.

3. Does your institution allow a variety of open enrolment options, for example rolling enrolment and self-paced study? (institutional approach to e-learning and delivery options)

The rationale for asking this question is to determine the institution's approach to flexible learning. As discussed in the literature review, flexible enrolment is often very beneficial to the student in terms of being able to choose when they start a programme and how they move through the course. Short courses are particularly suited to this type of enrolment. Longer duration courses may not be of benefit as the students may face some of the issues that were discussed in the literature review – issues of isolation and non-completion. The e-learning manager's answer may give some insight into what consideration is given to this dilemma.

4. What approach is used when developing courses using e-learning? (for example, project based, individual tutor, etc) (professional development, institutional support)

   The fourth question in the e-learning manager interview is focused on how e-learning development occurs in the institution. As indicated in the literature review in the section regarding funding and quality in Section 2.6.3.2, different approaches best suit different types of development. This question examines the development that is occurring on an ad-hoc basis where the individual tutors are developing all of the e-learning resources and activities, or if there is more of a team based project management approach. This approach may depend on the magnitude of the development, but it is useful to look at the structures that might be in place to provide project management assistance.

5. How many staff are involved in supporting students and tutors in e-learning in your institution? What are their roles?(institutional support)

   The fifth question was written to determine how many people are involved with e-learning training and support. Generally speaking a larger number of staff supporting e-learning, but clearly the smaller institutions would not be able to employ as many due to financial constraints. Essentially it is the identification of the need to have staff who can support e-learning. Even if it is only one individual, the fact that they recognise the different roles required to assist lecturers and students gives an indication of the baseline of support. These roles would be likely to include a strategic e-learning specialist (who may have national level affiliation – like the e-learning manager themselves); a technical learning management system administrator and a learning design/instructional designer. In Chapter 4, the number of staff will be compared with the number of Equivalent Full Time students (EFTs) in order to compare the ratio for each of the institutions.

6. Does your institution use e-learning mentors or champions? If so, how are they used? (institutional support, professional development)

The use of e-learning champions may indicate that e-learning is becoming more embedded in the institution. As discussed in the literature review, having other individuals involved in e-learning who can provide models of good practice within a certain faculty or school may free the e-learning manager to work with other schools. In addition, Bennett (as cited in Mitchell et al., 2004) stated that official sources were not always valued, and peers in the department were a greater source of knowledge for the tutors and more highly respected. This was true of self taught lecturers. The use of e-learning mentors might also give some indication to the level of commitment of the institution to supporting all aspects of e-learning, particularly if the mentors are incorporated into a formal support structure.

7. What resources does your institution have to assist students with the e-learning system (for example FAQs/help files)? (institutional support)

   The availability of FAQs questions means that the institution is providing students with online support. Hard copy may also be available, particularly in terms of initial login instructions sent out to students before they start the course. McVay (as cited in Bernard, Brauer, Abrami, & Surkes, 2004) discusses the concept of "readiness for online learning". The types of resources available to students before a course starts might include:

   - Published standard hardware requirements for anyone considering studying e-learning based courses
   - Handouts of how to login to the e-learning system
   - Online surveys to determine students' suitability for e-learning

   Additionally, there might be online resources for both students and staff. The depth of the resources available may give a good indication of the quality of support provided to both students and staff. As with other aspects of this interview, this is really establishing that there is a baseline of support provided (Marshall, 2006).

8. What professional development in e-learning is offered at your institution? (professional development)

   This question ties in with the overall professional development approach. One study in the literature review linked professional development and student outcomes (Prebble et al., 2005). Even lecturers that are currently using e-learning tools would benefit from exposure to new models of teaching and new programme. This question could provide background on the institution's approach to providing training (Hegarty et al., 2005; Marshall, 2006; Milne & White, 2005). The type of training the e-learning manager describes would likely include the following:

   - Technical skills training (focused on a learning management system such as Blackboard or Moodle)
   - Focused group (department or topic area)
   - Ongoing adult learning and teaching with special focus on e-learning, which may possibly include the lecturer taking on the role of an online student
   - One to one instruction based on project work or pilot
   - Ad hoc or just-in-time training
   - Showcases of good practice

9. Which of the professional development approaches do you believe has resulted in greater tutor satisfaction, student satisfaction, student success and level of student interaction, please provide some detail. (professional development)

   This question was written to consider when the institution uses different types of professional development and follows on from the previous question. In the literature review, two studies (Wilson, 2004; Wilson & Stacey, 2004) indicate that some types of professional development are more useful in encouraging more extensive use. In some cases, shorter more skills-based

courses area appropriate and at other times it may require project team work with intensive professional development. The e-learning manager's feedback may provide insight into the experience of the lecturers and the staff responsible for providing support to determine what type of training has worked best.

10. How do the staff in your institution keep up with new technology and teaching practices? (professional development)

    This question explores what type of on-going professional development is encouraged for lecturers following their initial e-learning training. The responses may include institution-wide training and development, formal qualifications or more informal lunchtime series.

11. What is the principal driver for using e-learning in a course? Who makes that decision? (institutional approach to e-learning and delivery options)

    This question was written to determine how the institution decides what courses should include e-learning tools (Bates, 2000). Responses are expected to include an institutional approach to increase the number of courses using e-learning or an indication that the decisions are driven by other factors such as lecturers' preference for using the tools or developing new markets (Anderson et al., 2006).

12. How is the development of e-learning courses funded in your institution? What criteria exist when making these funding decisions? (institutional approach to e-learning and delivery options)

    As indicated in the literature review in the discussion of funding and quality in Section 2.6.3.2, there is a range of opinion on whether or not it is better to fund centrally so economies of scale are maintained or for individual schools to fund their own development. The latter might indicate that the managers might not see e-learning as an institution's responsibility but rather as a department-level concern. It may also depend on the size of the project and criteria may reflect this when strategically important projects, are selected to be centrally funded.

13. What discussion has occurred at your institution regarding implications for workload? (institutional support)

    The question that relates to workload issues was created to determine where the institution sits in terms of defining issues related to teaching online. The expected answers might range along a spectrum. At one end would be no discussion of these issues, perhaps indicating a lack of recognition that teaching online has different demands than teaching in a classroom. Institutions in the middle of the spectrum might have a workload model working within some departments or schools. Other institutions may have a defined institution-wide policy. Lack of discussion may not necessarily mean that this is not occurring, but instead may mean that the e-learning manager has not been included (Bright, 2008; McNickle & Cameron, 2003).

14. Do staff get release time to develop the programmes? If so, how much? (institutional support)

    This question relates to whether or not the institution recognises the importance of release time in developing courses. In many institutions, lecturers are given release time to develop their online course themselves or to work alongside an instructional designer to develop the course (Bright, 2008; Lazarus, 2003; Mupinga & Maughan, 2008).

15. How has e-learning changed your institution's approach to quality assurance? (institutional approach to e-learning)

    This question relates to how quality in the courses that use e-learning is ensured. It might provide some insight on whether the institution sees these courses as separate from their more traditional face-to-face courses, for example, what processes are followed as part of normal course development and re-development (Marshall, 2006). Responses may also indicate what the institution and/or e-learning manager perceive as good practice by providing models, quality checklists and professional development requirements (Bates, 2000).

16. How do you measure the success of your institution's e-learning projects and courses? (institutional approach to e-learning)

    The Scottish study using Marshall's eMaturity Model discussed in the literature review highlights the fact that there is a lack of formal evaluation of e-learning projects (Sero Consulting, 2007). Although there was student evaluation and feedback, staff were not able to "provide system feedback" on their experiences of technical support and teaching experiences using e-learning technology. The model also explored opportunities for whole teaching departments to review the e-learning projects.

17. What constrains your ability to adopt e-learning? (institutional approach to e-learning and delivery options) (institutional support)

    The final question was added following feedback from the expert panel reviewing the questions in order to provide an opportunity to further explore some of the issues that limit the uptake of e-learning. Although this study does not focus particularly on adoption of e-learning, the e-learning managers' responses may provide further information about the institutional approach to e-learning and long term strategy (Anderson et al., 2006; Marshall, 2006; Milne & White, 2005; Organisation for Economic Co-operation and Development, 2005).

3.5 TESTING OF THE E-LEARNING MANAGER'S INTERVIEW QUESTIONS

The interview process was tested with a panel of e-learning and educational research experts. Once the e-learning manager's interview questions were developed, they were sent to different individuals for evaluation. The background of these individual's varied once again from those who came from an e-learning background, general educational background and research background. Those selected from an e-learning background were chosen because they had previously been employed at a vocational institute and were currently working on projects involving institutions from that sector. They were obviously selected because of their familiarity with the sector, but also the fact they were not currently employed by any of the institutions

that were asked to participate in the study. All of the individuals regardless of background were asked about the subject and format of the questions. Feedback ranged from email (from geographically distant individuals) to face-to-face discussions.

As previously stated, the data collection process was originally intended to be completed through email questionnaires to the e-learning managers. Initial feedback from the reviewers was that the questions may provide such depth of feedback from the participants that the author would need to follow up with the participants. As following up by email may create too much of a delay, it was recommended by the reviewers that the author interview the individuals and the decision was made to use IP telephony as the participants were geographically distant. As indicated in the interviewing process section, IP telephony was selected over standard telephone use as it provided options regarding recording of the interviews that a hand-held phone did not.

3.6 CREATION OF THE ITEMS WITHIN EACH SCALE OF THE LECTURERS' SURVEY

As previously stated the items in this survey were organised by a number of scales. Each of the scales was presented on different pages of the lecturers' survey. For each scale, lecturers were provided an opportunity to provide additional comments.

3.6.1 Use of E-learning Tools Scale

In the first scale, "Use of E-learning Tools", there were a series of statements that related to their experience as a staff member who uses e-learning/flexible learning in their courses. The intention of the scale is to place the staff member's use of e-learning at a particular level based upon the MoE Internet Use Classification (2008a) and the OECD (Organisation for Economic Co-operation and Development, 2005) typologies discussed in Chapter 2 in Section 2.2. Participants were asked to "consider the following statements and how they apply to your experience".

Table 3.3

Items in the "Use of E-learning Tools" scale

Item number	Background to question/justification for inclusion	Item
1	This item was written to determine if lecturers used the system to provide access to resources that were also provided in class. Responses may also indicate that the staff member teaches some component of their course in class.	I use the e-learning system to provide access to resources that I also hand out in class.
2	This item is designed to determine whether or not the lecturer sees their student in a traditional class environment, whether this be on campus or off campus.	I use the e-learning system because I don't see my students in a classroom.
3	Responses to this item would determine whether lecturers have a supplementary or administrative approach to e-learning. The types of files listed are generally resources that can be easily provided in a class environment.	I use the e-learning system to load files for my students to look at (PowerPoints, PDFs, etc).
4	Responses to this item would determine whether the staff member provides resources that can be used electronically. The students would complete tasks using the files and possibly re-submit them through the LMS. This indicates a slightly higher level of e-learning use by the staff member.	I use the e-learning system to load files for my students to use (for example Word templates, Excel files).
5	Posting announcements focuses more on administration so sits at the administrative level. Responses to this item would contribute to an overall picture of the lecturers' use of the e-learning tools.	I use the e-learning system to send/post announcements.

Item number	Background to question/justification for inclusion	Item
6	This item identifies whether or not the staff member has students submit their assessments using e-learning tools. It does not necessarily imply online assessments nor does it identify the types of assessments. It also doesn't indicate the type of files or assessments that are being submitted. It does however provide some insight into how the staff member views the use of e-learning tools. Allowing students to submit assignments indicates more two way communication between staff and student and may sit further up on the e-learning level identified by the MoE Internet Use Classification (2008a) and the OECD (2005).	I use the e-learning system to allow my students to submit their assessment(s) online.
7	This item follows on from the previous item and responses from the lecturers would provide more insight into their use of e-learning tools. The provision of the feedback becomes more effective and it reinforces the use of the system to the students (Salmon, 2005).	I use the e-learning system to provide feedback on my students' assessments.
8	Positive responses to this item may indicate a higher level of e-learning use. The quizzes may be limited to multiple choice questions, but if students are provided with opportunities to test their knowledge by formative quizzes, it may contribute to their success (Tyler-Smith, 2006). Additionally the use of quizzes is often accompanied by useful feedback for each response which provides the student further information on the topic.	I use the e-learning system to provide quizzes for my students.

Item number	Background to question/justification for inclusion	Item
9	Responses to this item would identify whether or not the staff member facilitates discussion online. A staff member that facilitates online discussion is using higher level e-learning tools (Hegarty et al., 2005).	I use the e-learning system to facilitate discussion online.
10	Responses to this may contribute to an understanding of how the staff member uses e-learning tools. Use of the e-learning system to provide simulations/video would indicate higher level of confidence by the staff member and possibly a higher level of e-learning use (Hegarty et al., 2005).	I use the e-learning system to provide access to simulations/videos.

3.6.2 Course and Professional Development Scale

In the next scale, "Course and Professional Development", there were a series of statements that related to the professional development of the staff member and the development of the course. Participants were asked to "consider the following statements and how they apply to your experience".

Table 3.4

Items in the "Course and Professional Development" scale

Item number	Background to question/justification for inclusion	Item
1	Responses to this item would determine how much assistance the staff member received in developing their course. Working with an e-learning specialist would indicate the staff member was exposed to concepts that supported not only their course development but also their own professional development (Hegarty et al., 2005).	I worked with an e-learning specialist to develop the e-learning components of my course.
2	Responses to this item would indicate that the staff member may be an enthusiast themselves; therefore they may have already received professional development or would be open to learning new technology. (Mitchell et al., 2005)	I developed my e-learning courses because I want to be innovative in my teaching.
3	Responses to this item would indicate if the staff member is expected to develop their own course. As indicated in the research, 'lone ranger' approaches may indicate a lack of development and support (Bates, 2000).	I developed my e-learning courses by myself.
4	Responses to this item would indicate the level of institutional commitment. Commitment would be indicated if the institution recognises the importance in allowing time for course development above and beyond time allocated for teaching the course (Bright, 2008; Lazarus, 2003).	I was/am given time off to develop my e-learning courses.
5	In contrast, positive responses to this item indicate that the individual does not receive release time and is expected to develop the courses on top of their normal teaching load would indicate a much lower level of institutional support (Lazarus, 2003).	I was/am expected to develop my e-learning courses while I teach my normal work load.

Item number	Background to question/justification for inclusion	Item
6	As indicated in the research (Hegarty et al., 2005; Milne, 2006), participation as a student in an online course is a highly beneficial form of development as the staff member has a deeper understanding of the student experience. If the individual was encouraged by the department or institution to enrol in a course where they were an online student this would indicate good understanding of the concept of experiencing e-learning before using it to teach. Responses to this item would indicate whether or not the staff member has experienced online learning as a student.	I have enrolled/ completed a course in which I was an online student.
7	This item was developed to determine whether the staff member has the opportunity to participate in professional development dealing with the use of information technology. This professional development may build the staff member's confidence generally which would contribute to the ability to use the LMS. The opportunity to participate in professional development in information technology would indicate high institutional support. (Hegarty et al., 2005)	I have attended professional development/ training in the use of information technology.
8	Responses to this item will contribute to an overall picture of e-learning professional development. Training in the use of the LMS should form an integral part of a systematic approach to e-learning professional development (Hegarty et al., 2005).	I have attended professional development/training in the use of a learning management system (your institution's system e.g. Blackboard, Moodle or similar).

Item number	Background to question/justification for inclusion	Item
9	Responses from this item may determine that a higher level of quality assurance is occurring in an institution. As indicated by the literature, it is important to provide staff with opportunities to comment on the professional development they receive (Marshall, 2006).	I have opportunities to provide feedback on the professional development I have completed.
10	Corresponding to the previous item is feedback on LMS training. Equal importance should be placed on all forms of professional development (Marshall, 2006).	I have opportunities to provide feedback on the learning management system (your institution's system e.g. Blackboard, Moodle or similar).

3.6.3 General Teaching Practices Scale

In the next scale, "General Teaching Practices", there were a series of statements that related to the teaching practices of the staff member. Participants were asked to "consider the following statements and how they apply to your experience".

Table 3.5

Items in the "General Teaching Practices" scale

Item number	Background to question/justification for inclusion	Item
1	Changing resources indicates the fact that the staff member has reviewed the success of the teaching resources and activities and made modifications to keep content current and to improve students' understanding. Ragan and Terheggen (2003) value the revision of a course and believe it should be integrated into the time allocation for teaching a course.	I change my resources each time I run the course.
2	Research indicates that contextualised learning can often contribute to students' understanding. Case studies are a valuable way to contextualise this learning and maintaining this case study throughout the course provides a consistent approach that would benefit students' understanding of the content (Salmon, 2005).	I often use case studies with my students.
3	From the research, Marshall (2006) indicated that e-learning courses which have published learning outcomes demonstrated good teaching practice.	The learning outcomes are published for each topic area.
4	Research indicates that providing prompt feedback is good teaching practice (Chickering & Gamson, 1987; Marshall, 2006). Lecturers who respond positively to this item would generally recognise the importance of using feedback in their teaching thus providing opportunities for their students to reflect on their own learning.	I provide prompt feedback on assignments/ assessments.

Item number	Background to question/justification for inclusion	Item
5	Lecturers that have better prepared courses may have a beneficial result on their students and may contribute to a higher retention rate. Positive responses to this item would indicate that the staff member is organised and provides details regarding course timetables and assessments (Marshall, 2006; Ragan & Terheggen, 2003).	I publish course timetables.
6	By publishing details about submitting assignments, the staff member often removes the frustration experienced by students. Finishing off and submitting assignments can often be a stressful situation for online students. Providing opportunities to practice e-learning skills before the course starts may overcome some of this anxiety (Tyler-Smith, 2006).	I publish instructions for how my students should submit their work.
7	Responses to this item would indicate whether or not the staff member is aware of critical success factors that contribute to student retention in e-learning courses Assisting students early in the course with any initial technology issues will mean they are more likely to continue with the course (Salmon, 2005; Tyler-Smith, 2006).	I provide instructions for how my students should get help.
8	Responses to this item would indicate whether or not the staff member has an awareness of the importance of links to learning support within the course. Providing access to learning support is recognised as a principal contributor to the success of an e-learning course and consequently student success. (Marshall, 2006; Tyler-Smith, 2006).	I provide links to learning support in my course.

Item number	Background to question/justification for inclusion	Item
9	Following on from the previous item, linking to library and information literacy resources which are easily accessible inside the course area also contributes to student success and is highlighted in a number of studies. (Marshall, 2006; Milne, 2006; Tyler-Smith, 2006)	I provide links to the library and information literacy resources to students in my course.
10	Marshall's eMaturity Model (2006) discussed the fact that many institution's evaluation processes do not include e-learning specific questions. A staff member actively seeking student feedback about the e-learning components of the course would therefore be able to overcome any deficit in the institution's evaluation process.	I ask my students for feedback on the e-learning components of my course.

3.6.4 Communicating with Students Scale

In the next scale, "Communicating with Students", there were a series of statements that related to how the staff member communicates with their students. Participants were asked to "consider the following statements and how they apply to your experience".

Table 3.6

Items in the "Communicating with Students" scale

Item number	Background to question/ justification for inclusion	Item
1	Positive responses to this item would indicate good management of workload, indicating that lecturers are able to set realistic expectations for their communication with students (Ragan & Terheggen, 2003).	I respond to student queries according to a published response time.
2	In contrast, positive responses to this item may point to the fact that the staff member is not managing their communication with their students well. In addition to the high overhead for the staff member, it may inhibit the students from communicating with each other on discussion forum (Butler, 2003; Chickering & Gamson, 1987; Ragan & Terheggen, 2003).	I respond to student queries every time they add a forum posting.
3	Responses to this item may indicate how comfortable the lecturer is with the course, the technology and the students. The higher their comfortable level with the discussion forum, the more they see it's use as benefiting and promoting communication (Salmon, 2005; Shea et al., 2003).	I am comfortable responding to my students' queries on a discussion forum.
4	Positive responses to this item may determine how the staff member values student communication. This would be evidenced in their willingness to ensure that students can contact them through a number of different methods. Marshall (2006) discussed the management of communication through appropriate communication technology.	I encourage my students to contact me through a variety of methods (forums, emails, telephone and possibly text messaging or Skype).

Item number	Background to question/justification for inclusion	Item
5	Research indicates that those that have a clear understanding of the differences in face to face and online communication will be able to use this knowledge to more effectively communicate with students. A positive response to the next item shows that the staff member has an understanding of these differences (Garrison & Anderson, 2003).	I understand that online communication is different than face to face communication.
6	A positive response to this item would also indicate that the lecturer values communication in the courses and that they may be more likely to create opportunities to promote this communication. Encouraging students to share their knowledge recognises that student-student communication can often be highly effective (Chickering & Gamson, 1987).	I encourage my students to share their knowledge.
7	Encouraging students to ask questions would indicate that the staff member wants the students to be engaged in the course and feel free to clarify their understanding of the concepts in the course. From the research supportive class environments assist students in their learning (Shea et al., 2003).	I encourage my students to ask questions.
8	A staff member who values their students' interaction will work toward providing a supportive environment (Chickering & Gamson, 1987; Salmon, 2005; Shea et al., 2003).	I value my students' interaction highly.
9	Providing "meaningful tasks" (Salmon, 2005, p. 210) to students allows them to interact with other students and not just computer programs. Positive responses to this item would indicate that lecturers perceive value in providing these meaningful tasks.	I feel that students need an opportunity to practice skills.

Item number	Background to question/justification for inclusion	Item
10	Creating a supportive learning environment often provides opportunities for deeper and more engaged online discussions. Positive responses to this item would indicate that the staff member has successfully created an online environment where there is a high level of interaction and were individuals are able to communicate effectively (Garrison & Anderson, 2003; Salmon, 2005; Shea et al., 2003).	I feel I know my online students really well.

3.6.5 Course and Student Demographics Information

The final section of the lecturers' survey has more specific questions that ask about gender balance, age and types of programmes. These factors may have some impact on student success (Allen & Seaman, 2006; Lapadat, 2007; Scott, 2005). This is to provide some insight into the types of student, particularly in terms of gender, age and success. The section uses multiple choice questions to identify:

- particular demographics of the students
- level of programme taught
- type of teaching – whether theoretical or practical skill based

Questions about gender were used to determine the profile of the students involved with e-learning. The question regarding the level of the programme was to see types of programmes are using e-learning and to question if lecturers at lower levels are using e-learning.

Another aspect is the lecturers' perception of e-learning's effect on student success. Did they perceive it to be of benefit? The most comprehensive approach would be a longitudinal study that recorded student success in a course, initially offered without technology, then using e-learning. It would be important to ensure there were no other variables like different lecturers on the course. This longitudinal study goes

well beyond the scope of this study. Instead, in order to gauge something of students' success, it was important to get the lecturers' impression of student success.

In rounding out the demographics of the students, it is also necessary to ask the lecturers the general age of their students. Vocational institutes can often be characterised by a particular student profile - those who for whatever reasons do not wish to go to university. This may not necessarily be more mature students; the age is often determined by the type of programme. By cross checking the level of the programme, the theoretical base and age, the responses should help determine whether this is what is reflected in most programmes across the vocational institutes sector.

The question regarding practical versus theory type of course will test whether the perception that practical course can not make good use of e-learning.

3.7 TESTING OF THE LECTURERS' SURVEY

The lecturers' survey was tested by individuals from different backgrounds in two different formats. Individuals involved in the initial feedback and evaluation came from the following areas: e-learning project management background, general educational background, teaching background and research background. These individuals viewed the survey in hard copy format and in some cases the online format. The choice to involve those from non e-learning related backgrounds was to ensure the questions' readability for someone who might be relatively new to e-learning. In all cases though, the reviewers who came from more general backgrounds did have minimum exposure to e-learning so that they would be able to understand the terminology used in the survey.

The online format was trialled by lecturers from another institution. The feedback was related to issues with the way the questions had been set up and once that was resolved, the lecturers indicated that they believed the questions were appropriate and were easy to read. They also indicated that the survey and software were generally easy to navigate.

3.8 DATA ANALYSIS

The data collected were analysed by comparisons between the percentage of e-learning levels and the amount of perceived e-learning support at the institution, both from the lecturers and the e-learning coordinators. Data collected from the lecturers' survey were analysed by statistical methods. This included examination of the means of the four scales and a correlation of the scales. Further analysis was conducted on the items of the final section by examination of the means of the groupings of possible responses. In particular, the links between the perceived student success and other items were explored. There were also numerical responses from the e-learning managers' interviews. These responses were compared and contrasted across institutions, particularly in terms of levels of staffing and levels of e-learning use. Also considered were the possible links between the institution's history of distance education and e-learning engagement (number and level of the e-learning courses).

3.8.1 E-learning Managers' Interviews

The e-learning managers' interviews were analysed using a grounded theory approach, with Nvivo software which facilitated the coding of the interviews (Bringer et al., 2006). The grounded theory approach allowed the researcher to determine if there is new theory that may be created indicating any causal relationships between the organisational approach to professional development and the amount of support offered. The analysis was selected as it provided an opportunity for the researcher to explain the processes of support and ensure a structured approach to the data analysis (Charmez, 2006). This analysis was then triangulated with the literature review and the lecturers' perception of the effect of e-learning on their students' success.

Although Strauss, one of the original proponents of grounded theory, believed an extended literature review should not be performed before the grounded theory analysis, researchers also need to have "theoretical sensitivity" (Strauss & Corbin, 1990, 1998, p. 209) which is gained through literature. Theoretical sensitivity refers to the researchers' familiarity with the topic and context. In addition to the literature review, researchers also gain this sensitivity through their own professional and personal experience. Charmez (2006) states that what the researchers see in the data

are often based upon their experience. Therefore, it is vital to see these prior perceptions as one view amongst many in the data to ensure that new ideas may be generated.

As the data collection could have been biased by perceptions, throughout the analysis, it was important to identify only the initial concepts to include in the questions in order to provide sufficient structure to ensure that the e-learning managers could comment on the full extent of their role in the institution. Although the interviews were structured they were flexible enough to allow comment on concepts that might not have been identified previously.

3.8.1.1 Description of Grounded Theory Process

The process for analysis in a grounded theory approach is for researchers to immerse themselves in the data, identify particular concepts and then analyse additional data with these concepts. This process allows categorisation of the data into the different concepts. The initial process is known as coding and the subsequent analysis of the data is known as axial coding. The original approach then was to use the themes identified in the literature review to code the data.

These included:

- institutional approach to e-learning
- delivery options
- professional development
- institutional support

3.8.1.2 Coding Process

As stated previously, coding is the process of examining the data in order to create new theory.

3.8.1.3 Open Coding

Open coding is the process of "categorising data" or finding common themes within the data (Strauss & Corbin, 1990, 1998). It became apparent very soon in the coding process that all of the original themes were too unwieldy to produce effective coding results. It was determined that these concepts might be better examined later in the coding process as part of the axial coding stage.

As all of the responses to the questions were separately coded via the use of automatic coding in the software used to aid the analysis, the next approach was simply to work through the questions in order to identify concepts that were related to the original four themes. The first step was to read through the original interview questions in order to identify concepts. Once a concept was identified the next step in the preliminary coding of the interviews was to read through the questions that were identified with that concept. This process formed part of a three-fold approach:

- read through the questions that might be related to the concept and code any relevant text. The difficulty that arose with this method is many of the responses to the questions overlapped and so it was necessary to;

- find any occurrence of the concept by searching for the words in the text of the interviews. This search was conducted to locate any discussion of the concept in questions that were not originally identified with the concept. This method proved very useful, but it became apparent that interviewees used different words to describe similar concepts and so it was also necessary to;

- read through the text of the whole interview to determine if there were any other references to the concept but that did not specifically identify any of the words in the concept.

For example, funding was identified in Question 12 as "how is the development of e-learning courses funded in your institution". The process listed above was followed to identify all the text in the 13 interviews that related to funding of e-learning development in courses and programmes. The process of reading and re-reading the text of the interviews is a method referred to as the "constant comparison method" (Glaser & Strauss as cited in Charmez, 2006). This method compares data (text of

the interview) from one source to that of another. This constant comparison often produces further concepts that may in turn be used in the open coding.

Alongside this process was the creation of memos – notes and ideas about the concepts. Memos in their simplest form are documents that capture thoughts regarding the context of the identified concepts as well as the relationships between these concepts. The process of writing memos is a process that continues throughout the coding process (Charmez, 2006).

For example in Figure 3.4, when reviewing the responses to the questions about funding, in the recording of the e-learning managers' perspectives, the researcher discovered that thematically there were three different types of funding.

Funding Memo

School/faculty budgets – which implies a sense of business as usual.

Central contestable fund – which covers the ongoing ministry contribution to funding know as Quality Re-investment Programme (QRP)

External funds – which covers funding from TEC, such as eCDF and more recently Enhancing and Supporting Innovation and the National Centre for Tertiary Teaching Excellence (Ako Aotearoa)

Is infrastructure funding different to resource development - quite likely not, but may be worth considering. Another thought about this is whether or not seed funding is in earlier stages of funding and then on-going re-development out of school budgets happens later as institutional support is entrenched. What about synergies of centralised development? One consideration might be that funding within the department may have implications for workload and time release. It may be easier to barter lecturers' time so workload and time release may not have to be provided.

Criteria in the interviews may be for all re-development or apply directly to e-learning re-development. Criteria may not be an attribute of funding, but there is some link between the two. Is funding dependent on criteria?

Figure 3.4. Memo written during open coding.

3.8.1.4 Axial Coding

Once the open coding was deemed complete and any further concepts had been exhausted, the next stage was to complete axial coding. Throughout the process of open coding, Charmez sees the need to compare data to data, data to code, code to category and category to category. The stage of code to category of this comparison method describes the process of axial coding (2006). Axial coding identifies relationships between the concepts and how they might be categorised. It can often lead to one or more overarching categories. There is also the possibility of

identifying dimensions of the concepts, for example where the aspects of the concepts can be considered on a continuum (Strauss & Corbin, 1990, 1998).

3.8.1.5 Selective Coding

Once all of the categories had been collapsed and each of the dimensions explored, the next phase of grounded theory analysis is to begin selective coding. Strauss and Corbin describe this core category as the central phenomenon around which all the other categories are linked. The process of selective coding is the selection of the category and the validation of the relationships of the other categories with this core category. They liken the core category as the "story", by describing what is happening in order to conceptualise why it is happening (Strauss & Corbin, 1990, 1998, p. 156).

3.9 DATA STORAGE

The data were stored on computer in a secure location while analyses (statistical and other) were completed. The data files will be maintained electronically for five years in the office of the author's supervisor at Curtin University after which time they will be destroyed. Questionnaires developed for the study and completed by participants were destroyed at the conclusion of the study.

3.10 SUMMARY:

The overall aim of this study was to focus primarily on the support provided by the institutions and by the lecturers' perceptions of how e-learning is affecting the success of their students. The following methods were designed to provide answers to the research questions:

- Are there different levels of e-learning? Is it important to make a distinction?

  The e-learning managers' interviews provide a framework for data collection at an institutional level. The lecturers' surveys provide a picture of how they are using e-learning tools to better understand what MoE Internet Use Classification/OECD level they are operating at.

- Do these different levels suit different qualification levels or topics?

- Do different topics better suit e-learning? Do vocational institutes offer these topics?

- Do different types of learners better suit e-learning? Do the vocational institutes have these types of learners?

  The last section of the lecturers' survey was designed to provide answers to what qualification levels and topics of the courses the lecturers were working with, in addition to the types of students on the courses.

- Is technology always the answer?

  Further background was deemed important to give a fuller understanding of this research question. Data were collected from both e-learning managers and teaching regarding professional development and support, quality assurance and finally teaching and communication practices.

This chapter describes the process for data collection using a triangulation of two different sources - e-learning managers and lecturers and two different methods – interview and questionnaire in order to answer the research questions. The concept of using multiple sources and methods is called triangulation. The triangulated process is depicted in Figure 3.1.

The following chapter discusses the results from, and analysis of, the lecturers' surveys administered during the data collection process. A grounded theory analysis of the transcripts of the e-learning managers' interviews is provided in Chapter 5.

CHAPTER 4

RESULTS AND DISCUSSION/INTERPRETATION

An analysis of the data obtained from two different sources - the lecturers and e-learning managers of 13 vocational institutes in New Zealand is presented in this chapter. Discussion of the data analysis results and interpretation as to why the results were obtained is also provided. This study proposed to ask fundamental questions about e-learning use in vocational institutes in the New Zealand tertiary sector. These questions are outlined in Chapter 1 and further discussed at the end of Chapter 3. The questions provided a framework to establish an online survey instrument.

4.1 ANALYSIS OF THE LECTURER SURVEY

A series of analyses were conducted on the responses from an online survey. The survey was completed by 80 respondents from 13 vocational institutes in New Zealand.

4.1.1 Reliability of Lecturer Survey Scales

The term “alpha reliability” or Cronbach’s alpha coefficient is a reliability test that is calculated on the correlations of responses between items. Nunnally describes reliability as “the extent that [measurements] are repeatable” (As cited in Cortina, 1993, p. 98). It sets a lower bound for what might be considered true reliability. It is dependent on the fact that people respond differently because they have different options and not because the survey items are vague. The importance of the reliability factor is to determine the consistency of responses to items within a particular scale. (Cortina, 1993) In this study, items are grouped in four scales, discussed in the previous chapter. Table 4.1 lists the reliability values for the four scales.

Table 4.1

Reliability Analysis of Scales in the Lecturer Survey.

Name of Scale	Cronbach Alpha Coefficient
Use of E-learning Tools	.68
Course and Professional Development	.67
General Teaching Practices	.72
Communicating with Students	.60

n = 80

According to Nunnally, an acceptable internal reliability score is one over 0.60 for "preliminary research" in social science (As cited in Cortina, 1993, p. 221). The results in Table 4.1 list the Cronbach Alpha coefficients for each of the four scales. The internal reliability scores are all over 0.60. The scores are acceptable for the four scales and indicate a consistency of response, and therefore can be used with confidence in this study in New Zealand vocational institutes.

4.1.2 Discriminant Analysis

In order to ensure that the items fit well within the scales, a discriminant analysis was completed on the four scales. A discriminant analysis is one method of determining group membership, therefore determining whether the items fit within distinct scales. The results are listed in Table 4.2, the column headings are abbreviations of the scale titles.

Table 4.2

Discriminant Analysis – Correlation between Scales in the Lecturers' Survey

	Tools	Development	Practices	Communicating	Mean
Tools	1.00	0.25	0. 36	0. 26	0.25
Development	0.25	1.00	0.22	0.13	0.20
Practices	0.36	0.22	1.00	0.58	0.39
Communicating	0.26	0.13	0.58	1.00	0.32

n = 80

The results of the analysis are low enough to indicate that the scales measure distinct, although somewhat overlapping aspects of e-learning and teaching practices. These results indicate that the grouping of items within the scales was valid.

4.1.3 Means of the Scales

The next phase of the data analysis of the scales was to determine and compare the means for the scales in order to determine the lecturers' perceptions. The means for the four scales are listed in Table 4.3.

Table 4.3

Scale Means from the Lecturers' Survey

Name of scale	Mean	Standard Deviation
Use of E-learning Tools	3.62	.71
Course and Professional Development	3.24	.64
General Teaching Practices	3.98	.56
Communicating with Students	3.82	.42

n = 80

The fact that some of the means are relatively high is not surprising as each of the scales are measuring practices that support e-learning and all of the lecturers involved in the survey were already using e-learning tools in their teaching. It is interesting to note that the lowest score is in the Course and Professional Development scale, which sits just above the equivalent value for "Not Sure" in the Likert-type scale. The rationale for including this scale in the survey is that it would provide insight into how lecturers developed their course and how much support they received from their institutions. This support could be professional development for the lecturers and/or the professional expertise of those assisting lecturers to develop their course. The low mean might be interpreted as showing that lecturers feel they are not receiving strong institutional support. However, it was also intended to measure whether or not lecturers were expected to develop their own courses, so further examination of the individual items and additional comments discussed in Section 4.1.4.2 provides additional insight into the cause of the low mean.

The highest of the mean values is that for General Teaching Practices scale. This scale was included to measure lecturers' attitudes and approaches to the following: currency of resources, feedback and access to support.

It may be that lecturers that are using e-learning have very reflective practices as they have either done additional training in pedagogy through e-learning professional development or because they are more innovative in their teaching. As a result of this training or through their own established practices, they may provide more feedback and have more structured administrative practices that promote student achievement. This may in turn contribute to the lecturers' perception of student success.

The next highest mean is that of Communicating with Students. This scale was included in the survey in order to understand how lecturers chose to communicate with their students, which in turn may give some insight into how willing teaching staff would be to teach online. The resultant mean of the scale may indicate that the lecturers highly value their interaction with students. Lecturers may have had some additional training in how best to communicate with students online, but it may also stem from these lecturers having a more focused approach to communication than other lecturers. Salmon identified a link between communicating with students and lecturers' readiness to use more e-learning tools (Salmon, 2005). The finding of the survey reinforces this view.

The other mean listed in the table for the Use of E-learning Tools scale tended toward the "agree" part of the Likert-type scale. The scale was included in order to measure the way in which lecturers were using the e-learning tools by examining the complexity of the tools used and how they were used by the lecturers.

The range of responses in terms of the Likert scoring within each of the scales was quite small indicating agreement among the respondents. The standard deviation in the Use of e-learning tools indicates the most variation in the responses and the corresponding number for the Communicating with Students indicates the least variation in the responses.

4.1.4 Items within the Scales

The next part of the data analysis examined the means of the individual items in the scales to gain some insight into what items may have contributed more to the overall scale means. In each of the sections below, the means of the items in the scale are presented in tables. Although only some of the items in each of the scales are discussed because they may have more significance due to their high or low means, all items are included in the tables to allow for comparison.

4.1.4.1 Use of E-learning Tools scale

Table 4.4 lists the means for the Use of E-learning Tools scale.

Table 4.4

Means from the Use of E-learning Tools Scale

Item No.	1	2	3	4	5	6	7	8	9	10
Mean	3.54	2.84	4.41	4.02	4.42	3.51	3.32	3.61	3.6	2.9

n = 80

The highest means in the Use of E-learning Tools scale were items that referred to making information available to students. Two of these items (3 and 4) were included to determine what type of access students had to files, either simply to view the file or to actually use the file as part of an assignment submission. The high means of these two items would indicate that lecturers recognise the importance of making resources available. The third of these three items (item 5) refers to the use of the LMS to post announcements to students. In a similar fashion to providing access to files, posting announcements is another basic tool of the LMS and ensures that students are kept informed.

One of the lowest means was that for item 2 relating to the use of the LMS as an alternative to seeing students. It can be assumed that this mean is low because most of the lecturers see their students in a blended environment where many of the activities are online but there are still face-to-face meetings. A few of the responses given in the additional comments area provide further evidence of this concept. For example one of the comments was "*I use mainly blended learning so the online component adds an extra dimension to face to face teaching*." It may also be that the

use of e-learning is at a supplemental level and that the courses are not fully online. "*So far I only use* [LMS] *to support class room teaching (I don't teach an online course).*" Refinement of the survey instrument in future studies might provide an opportunity to further differentiate the lecturers' levels of e-learning use.

Another low mean was that for item 10 relating to the provision of access to simulations/videos. This may indicate that the resources the lecturers uploaded to the LMS were only at the level of sophistication of word document files and spreadsheets. As discussed in Section 3.6.1, the use of simulations and videos may indicate a higher level of confidence with technology. The low mean for this item would therefore indicate that e-learning use is at a more basic technological level, responses in the additional comments indicated that many lecturers interested in using more advanced features of the LMS, but had not had the time to explore it:

> "*Some of the possibilities are interesting but I have not yet had the space or time to really think about how to use them to enhance the learning for the students or to support the face to face learning. It is on the 'to do list'*.

4.1.4.2 Course and Professional Development Scale

Table 4.5 lists the means for the Course and Professional Development scale.

Table 4.5

Means from the Course and Professional Development scale

Item No.	1	2	3	4	5	6	7	8	9	10
Mean	3	3.95	2.44	1.84	1.88	3.35	3.64	3.92	3.52	3.12

n = 80

The lowest means in the Course and Professional Development scale relate to the items that refer to the development of courses. One of the items, item 4, refers to whether or not the lecturers received release time to develop their courses. The other item, item 5 refers to whether or not they have to develop their courses on top of their normal teaching load. A low mean for item 4 could indicate a low level of institutional support, by not providing release time. A low mean in item 5 refers to the fact that lecturers have to develop their course on top of their workload. With the low mean of item 3 indicating that lecturers had to develop their own courses, it may

appear that lecturers do not receive a great deal of support. However, looking at the responses in the additional comments, it would appear that lecturers consider the development of e-learning resources and activities as part of the normal re-development of their course and did not feel that additional time was required, "*The development and use of e-learning courses are just part of my job, so extra time was not necessary.*"

In the case of supplemental e-learning use this may certainly be the case. In addition, those that did develop their courses, felt they had access to support,

> "*Some of my answers might seem contradictory, but I have largely developed our e-learning materials by myself, however, I have had access to expert support whenever needed*."

The highest mean was that for item 2 which related to whether or not the lecturers chose to use e-learning to be innovative in their teaching. This result is not surprising and serves to reinforce the concepts that more innovative teaching practice can lead to increase in use of e-learning (Salmon, 2005). The next highest means were for items relating to professional development attendance both in information technology and the LMS system. This high mean indicates that the majority of lecturers are attending training in the use of the LMS system in order to gain skills to develop or improve their own courses.

4.1.4.3 General Teaching Practices Scale

Table 4.6 lists the means for the General Teaching Practices scale.

Table 4.6

Means from the General Teaching Practices scale

Item No.	1	2	3	4	5	6	7	8	9	10
Mean	3.42	3.68	4.35	4.35	4.48	4.5	4.21	3.62	3.58	3.65

n = 80

Overall, the means of the items in the General Teaching Practices scale were relatively high in comparison to the items in other scales. As previously indicated in Section 4.1.3 - Means of the Scales, this scale had the highest mean overall. One

possible explanation for these high means is that positive responses to these items would be recognised as good teaching practice. The fact that the lecturers agree with these statements would indicate they value these practices and may be more reflective in their teaching. The adoption of e-learning does not necessarily indicate that a lecturer is more reflective, but studies have indicated that lecturers who use e-learning may be amongst the most interested in improving their teaching practice. In this case of these items, higher means would be expected (Mitchell et al., 2005).

The items that tended to have means in the mid range were those items that were related to links with non-teaching departments. These items included providing links to the learning resources/student support and library from within their course area on the LMS. Additionally, in this range is the item relating to asking for feedback on the e-learning components of their courses. The means are likely to indicate that lecturers leave these tasks to other individuals or departments within the institution. For example, a comment from one of the respondents was, "*No point in duplicating links to library etc - students are very familiar with those resources.*"

The range of items that had higher means relates specifically to items that pertain to practices that the lecturer could assume to be in their direct control. These are items such as providing relevant course information or instructions on how students should submit their assignments.

4.1.4.4 Communicating with Students Scale

Table 4.7 lists the means for the General Teaching Practices scale.

Table 4.7

Means from the Communicating with Students Scale

Item No.	1	2	3	4	5	6	7	8	9	10
Mean	2.61	3.31	3.98	3.92	4.66	4.55	4.71	4.71	4.51	3.24

n = 80

The lowest mean related to the item that asked about responding to students based on a pre-published response time. As discussed in Chapter 2, Ragan and Terheggen (2003) recommended publishing schedules for response times to queries. There may

be two reasons for the mean being so low. Either the lecturer does not follow this practice or more likely, most of the courses they teach are blended where they see their students in a face-to-face environment in addition to their online time. Some of the additional comments made by the respondents indicated that very few of the courses were completely online. For example, one lecturer stated, "*Our online students also attend class so have an opportunity for all types of interaction*" and another lecturer's comment was, "*I use blended delivery so I see my students sometimes in class but often they are off campus, so I use a variety of methods of communication with them*".

The highest mean was shared by two items. One item referred to encouraging students to ask questions. The other item was related to whether or not the lecturer valued their students' interaction highly. Both questions could be considered to be an ideal practice so respondents may feel they need to agree. However, as has been discussed in other sections of this chapter, it may be that this group of respondents are generally more innovative and reflective in their teaching so that the high scores may truly be an indication of how they view their interactions with students.

Many of the additional comments made by the respondents indicated that the method of communication would depend greatly on their students' queries. Some would put the response on an announcement, others would respond directly to the student. One respondent's comment summed up a number of other comments:

> *"Prefer to email individual students: depends on the issue. If the reply to a query helps others I will put it in announcements or discussion board online, if it is specific or would embarrass the questioner, they get a personal reply"*.

4.1.5 Perception of Student Success

In addition to the four scales in the lecturers' survey, there was a final section that contained items related to student demographics as well as an item related to the lecturers' perception of how e-learning affects their student retention and success.

Overall, results from the lecturers' survey indicated that the lecturers saw the use of e-learning in their course as having a positive effect on their students' success.

Figure 4.1 below indicates that 60% of respondents felt e-learning had increased their students' success.

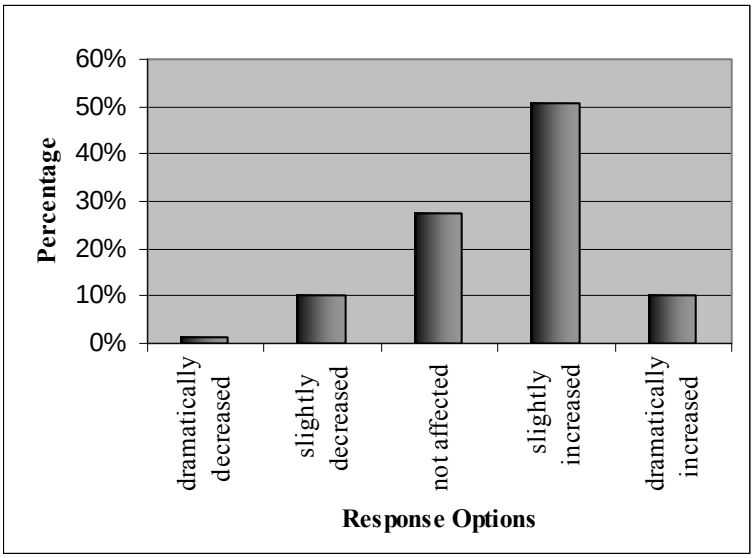

Figure 4.1. Lecturers' perception of student success.

This result is not surprising as the lecturers who were participating had been identified by their e-learning managers as those who used e-learning in their courses and would therefore have a positive outlook on how it might affect their students' success.

Clearly, some of the lecturers felt strongly that e-learning use has had a beneficial effect. One lecturer stated that her/his perception of student success

> "*is based on feedback from my students who say they have learnt a lot from the units they have completed through elearning, and have retained more information than they would have by just sitting in a classroom.*".

Those that felt that the use of e-learning had resulted in better retention and success, were not certain whether it was the e-learning or the type of student who was taking the courses. One respondent stated that the students "*must be self motivated and vigilant*". Another respondent stated that "*I think [the LMS] has given our students more confidence in technology*". In another case, the lecturers felt that their students were more motivated to complete the course.

"*I don't think it's increased retention, but has allowed them to study better, learn things that they didn't understand in class and catch up when they miss class*."

Other comments raised the issue of what was meant by the phrase "e-learning". Some lecturers indicated they were teaching "online", a level that sits at the highest level of the MoE Internet Use Classification (Section 2.2), but were still seeing students in class. As discussed in Chapter 2, the lack of agreement regarding e-learning terminology can often cause these misunderstandings.

Additionally, there were lecturers who were uncertain as to whether e-learning had any effect on student success because they did not teach the course in a face-to-face delivery format therefore having no basis for comparison.

Still other lecturers indicated that they taught using a blended delivery format (combining e-learning and face-to-face delivery – This type of delivery would possibly equate to the third level of the MoE Internet Use Classification and so would not be fully online). These lecturers commented on the benefits of the face-to-face workshops, so they were uncertain whether students would have as much success in a fully online course. For example, one lecturer commented, "*If I have just used an e-learning method (totally online) I would say the success rate is less than the blended method).*"

Table 4.8 shows the results of simple correlations performed on each of the scales and the measure of the lecturers' perception of the students' success:

Table 4.8

Simple Correlations between the Four Scales and Perceived Students' Success

Scale Name	Correlation value	Levels of significance
Use of E-learning Tools	-0.11	0.34
Course and Professional Development	0.09	0.44
General Teaching Practices	0.08	0.47
Communicating with Students	0.18	0.11

n = 80

There does not appear to be any significant correlation between the scales and lecturers' perception of students' success and retention. As indicated in the previous section, the majority of lecturers felt that e-learning had a positive effect on their students' retention and success. However, the means of these scales do not appear to have any significance in terms of their students' success. This may appear somewhat contradictory, but may instead indicate that lecturers consider other factors as having more significance on their students' success than their use of e-learning.

Table 4.9 examines the means of the scales and perceived student success by institution. Lecturers could choose to identify their institution in the survey. 63 respondents chose to do this and the results reflect these numbers.

Table 4.9

Means of Scales and Perceived Student Success by Institution

Institution number	ULT	CPD	GTP	CwS	Success	Number
1	4.30	3.90	4.63	4.30	4.00	3
2	3.44	3.16	3.96	3.74	3.60	20
3	3.97	2.97	4.53	3.93	3.67	3
4	3.67	3.31	4.24	4.11	3.00	7
5	3.40	3.80	4.30	3.80	5.00	1
6	3.90	3.55	4.10	3.80	4.00	2
7*						0
8	3.73	3.37	3.83	4.07	4.33	3
9	1.67	3.30	3.15	3.35	4.50	2
10	3.51	3.63	3.98	3.83	3.50	12
11	3.59	3.04	4.13	3.89	3.57	7
12	3.65	2.95	4.05	3.85	2.50	2
13	4.30	2.90	3.50	3.70	2.00	1
Total for identified lecturers	3.58	3.30	4.04	3.86	3.57	63

* There were no lecturers that identified themselves as being from Institution 7.

In some cases the number of lecturers per institution is quite low. Therefore the variation in means may be explained by the fact that it is measuring one or two individual responses. For those institutions that had larger numbers of lecturers (those with 20 and 12 respectively), the means are similar to the means of the whole group.

4.1.6 Remaining items in the Final Section

The remaining items in the final section were multiple choice formats and provided an insight into the type of course, qualification level, gender and age of the students. In order to classify the level in many of the items it was necessary to set a strict criterion on the response options. This criterion was set at 75% to establish that it was a true majority and not just marginally more than the other choices.

4.1.6.1 Type of Course

The first of the items in the final section relates to the type of course.

Table 4.10 outlines the responses. Of the respondents, 49% indicated that they taught a mixture of theory and practical skills in their courses. A further 44% responded that they taught mainly theory. Leaving only a few who believe their courses were more practical based or work-based. This response indicates quite strongly that lecturers do not use e-learning for predominantly practical skills based courses. In some cases it may have been the level of course that determined the type, "*I teach on a postgraduate programme so by virtue of its level it is mainly theory based*". Others indicated that they used e-learning for all their courses regardless of type, "*I teach in both types of papers: theory based and practical. I use e-leaning for both.*

Table 4.10

Course Type-Based Means for Perceived Students' Success

Type of course	Percentage	Number	Mean
I use the e-learning system for courses that are mainly practical skills (over 75%)	4%	3	3.00
I use the e-learning system for courses that are mainly theory based (over 75%)	44%	32	2.91
I use the e-learning system for courses that are mainly for work-based courses (over 75%)	3%	2	1.00
I use the e-learning system for courses that are an equal mix of theory and practical skills.	49%	35	3.40

n = 72

In order to determine whether there is a link between student success and type of course, the means of the item referring to student success were compared for the course type groups. The only significant mean for these groups was that for work-based courses. As the numbers who identified their courses as predominately work-based were a very low percentage of the total, this mean may not be a true indication of this group.

4.1.6.2 Qualification Level

The next item to be discussed refers to the qualification level of the programme which the lecturer teaches in. The percentages for responses to the item about the qualification level are listed in Table 4.11.

Table 4.11

Qualification Level in the Lecturers' Survey

Response option	Percentage	Number
I teach mainly on a certificate/national certificate programme (for example, over 75% of your teaching time).	27%	19
I teach mainly on a diploma programme (for example, over 75% of your teaching time).	26%	18
I teach mainly on a degree programme (for example, over 75% of your teaching time).	30%	21
I teach mainly at post graduate level (for example, over 75% of your teaching time).	6%	4
I teach a mix of programmes, please list below.	11%	8

n = 70

Of those respondents that identified a qualification that made up the predominant component of their teaching, the majority, over 63% identified teaching at the sub degree level. This result is what might be expected at vocational institutes. It is of interest though that at least 30% of those who identified a qualification level taught predominantly at a degree level. Additionally, of the 11% who did not identify a qualification level, the majority indicated in the additional comments that they were teaching a mixture including degree level. Considering there are fewer degree programmes than certificate and diploma in the vocational institutes sector, it would appear that the lecturers who teach on degree programmes are more likely to use e-learning than those who teach at certificate and diploma level.

4.1.6.3 Link with Qualification and Perception of Student Success

Based on the retention and success study (Scott, 2005) discussed in Section 2.8 of the Literature Review, students studying at higher levels are more likely to succeed. However, Scott's data do not indicate how the use of e-learning affects retention and success. Although this study does not intend to provide an exhaustive account of how e-learning affects student success, it is interesting to analyse the results of the survey to examine how the lecturers perceive their use of e-learning affects their students'

success at different levels of qualification. Table 4.12 is a cross tabulation of the two items.

Table 4.12

Cross-tabulation of Qualification Level and Perceived Students' Success

Perception of student success	Qualification					
	Certificate	Diploma	Degree	Post-grad	Mixed	Total
Dramatically decreased	1	0	0	0	0	1
	5%	0%	0%	0%	0%	2%
Slightly decreased	6	1	0	0	0	7
	29%	6%	0%	0%	0%	11%
Not affected	5	2	5	3	1	16
	24%	12%	25%	100%	20%	24%
Slightly increased	5	11	15	0	4	35
	24%	65%	75%	0%	80%	53%
Dramatically increased	4	3	0	0	0	7
	19%	18%	0%	0%	0%	11%
Total	21	17	20	3	5	66

There was quite a diverse spread of perception across the table. There was a reasonable spread across the success categories for those lecturers who taught mainly certificate levels. The smallest value was the one lecturer who felt e-learning dramatically decreased student success. Those who felt e-learning use slightly decreased student success were slightly larger than both the group who felt there was no effect or that it slightly increased student success. Finally, almost one-fifth of the group felt that e-learning dramatically increased their students' success.

In the group of lecturers who taught mainly diploma, the responses were more optimistic about the effect of e-learning on student success. There was only one lecturer who felt it had a negative effect and only 12 % who felt it had no effect. The

largest number of responses in the group was those who felt e-learning slightly increased their students' success. In a similar fashion to those teaching at the certificate level, almost one-fifth of lecturers teaching mainly diploma felt that e-learning use dramatically increase student success.

Of the lecturers who taught mainly degree programmes, one-quarter felt that e-learning had no effect on student success. Three-quarters of the group felt that e-learning had slightly increased their students' success.

Lecturers who taught mainly post-graduate programmes felt uniformly that e-learning had no effect on student success. It may be that students are more independent at that level and the mode of teaching may not have a significant impact. However, this is a low number of responses, so needs to be considered in that context.

Finally, the group of lecturers who taught a mix of programmes were perhaps the most optimistic where 80% of the lecturers felt that e-learning had a positive effect on their students' success.

4.1.6.4 Student Ages

The next item considered is that of the students' age. Of the respondents who selected an age group for their students, 56% indicated that their students were over 25 years old, with 44.1% indicating their students were 25 years or younger, listed in Table 4.13. It is the general perception that the delivery formats common to "distance learning" such as online learning or blended learning do often attract more mature part-time students (Allen & Seaman, 2006). These results are in keeping with this general perception.

The wording of the question, "at least 75% of your students", meant that the selection criterion for each group was purposefully quite strict as with the other items to ensure that it was a true majority of their students and not a small margin. Due to the restriction, it did result in a number of respondents providing additional comments in the "other" optional area of the question. Additional comments indicated that the majority of these respondents found it difficult to answer due to two factors. First that the criterion was too rigid and second that their students' ages

varied from one group to the next. As one respondent stated, "*This percentage varies from year to year and class to class.*"

Table 4.13

Age-based Means for Perceived Students' Success

Age	Percentage	Number	Mean
I teach students that are mainly 25 years or younger (for example, at least 75% of your students are 25 years or younger).	44%	30	3.40
I teach students that are mainly older than 25 years old (for example, at least 75% of your students are over 25 years).	56%	38	3.26

n = 68

In order to determine whether there is a link between student success and age, the means of the item referring to student success were compared for the two age groupings. The mean values listed in Table 4.13 are very similar for both groups.

4.1.6.5 Gender

The final variable to consider in the student demographics section of the lecturers' survey is the students' gender. This item also had quite a strict criterion. The results are indicated in Figure 4.2 below.

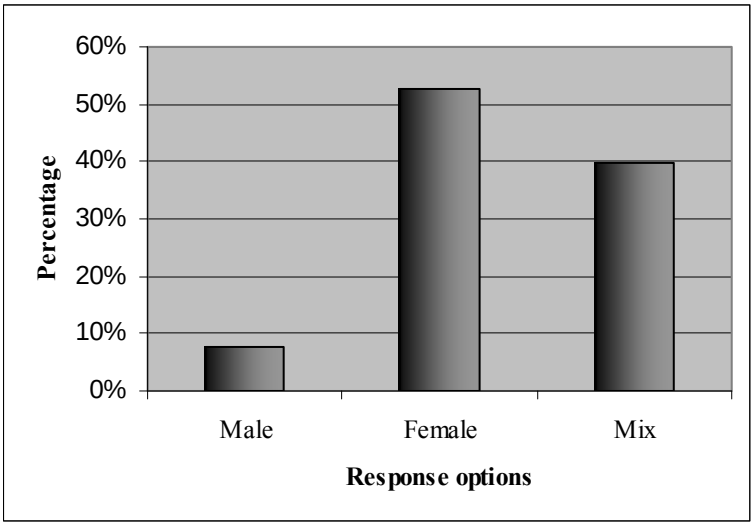

Figure 4.2. Lecturers' survey response to students' gender mix.

Table 4.14 lists the mean value of the perceived students' success for each gender category.

Table 4.14

Gender-based Means for Perceived Students' Success

Gender	Percentage	Number	Mean
Mainly male	8%	6	4.17
Mainly female	53%	41	3.02
Mixed gender	40%	31	3.03

n = 78

The value of the responses for the lecturers teaching mainly male students is significantly higher when compared to the other two means, which may indicate that lecturers perceive an increase in students' success in male dominated courses. However, due to the low number of respondents who selected the category for mainly male students, it would be necessary to determine if this would be the case in a larger sample.

Perhaps though the most significant fact is the low percentage of responses that indicated their courses were male dominated. Initially, this might appear to indicate that lecturers who had more males in the class would be less likely to use e-learning tools in their courses. Further research in other studies would be required to determine if there may be other contributing factors to lecturers not using e-learning tools with male dominated courses. These factors may include the mix of theory and practical and level of the course.

4.2 NUMERICAL VALUES IN THE E-LEARNING MANAGERS' INTERVIEWS

The majority of the questions that were asked as part of the e-learning managers' interviews were qualitative in nature. These questions are analysed in the next chapter as part of a grounded theory approach. However, some of the responses were numerical values that provided an opportunity to compare and contrast the institutions in terms of level of e-learning use and the level of support offered students and lecturers. Statistics available through government websites on enrolled

student numbers also provided an opportunity to compare these aspects of e-learning use and support.

4.2.1 Number of Staff Supporting E-learning

One of the questions in the e-learning managers' interview related to the number of staff that was directly involved in supporting e-learning in the institution. In most cases, e-learning managers reported that the IT Help Desk helped students as the first point of contact. As it would be difficult to determine how often the queries were directly related to e-learning use, the IT Help Desk staff were not included in the total for each institutions. Those staff supporting e-learning were a mix of managerial, technical and instructional design staff. The number of staff ranged from one individual in one institution to seven in two institutions. The overall mean for all 13 institutions of the number of staff supporting e-learning was 2.8 people. Based on the fact that there was a least one individual from each institution that was willing to participate in the e-learning managers' interviews, it can be assumed that at least part of that individual's role was the management/reporting of e-learning in the institution. Except for the case of one institution were only part of the e-learning manager's role was e-learning, all other institutions had a minimum of one individual charged with e-learning management.

The responses from the question about staff numbers were then considered with the number of Equivalent Full Time Students (EFTS) for each of the institutions to determine the level of support. These EFTS values are from 2008 and are taken from the MoE publication website (Ministry of Education, 2008c). The results generally followed the trend that larger institutions had more e-learning staff. However, there are some results that do not follow this trend. For example, there are two institutions that have seven staff that support e-learning, but one of these institutions has half the number of EFTS as the other.

In order to depict the level of support for each institution, the number of e-learning support staff per 1000 EFTS was calculated. The results are indicated in the Figure 4.3. The highest value was over 2.0 staff per 1000 EFTS, the lowest 0.3 indicating a discrepancy in the ratios at different institution.

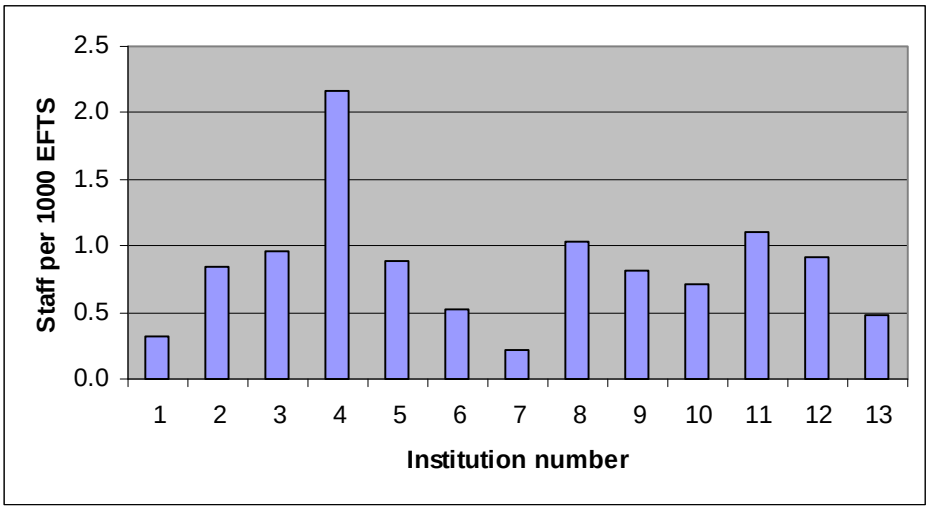

Figure 4.3. Staff supporting e-learning (Staff per 1000 EFTS).

4.2.2 E-learning Use in Vocational Institutes – Estimate of Levels

The other numerical data that were collected from the e-learning managers' interviews relate to the level of e-learning use. This measurement is based on the percentage of courses at each of the levels in the MoE Internet Use Classification discussed in Section 2.2 of the Literature Review where four levels were identified. These levels are repeated here to aid in the analysis:

1. No Access is where no part of the paper or course is accessible online.

2. Web-Supported is where a paper or course provides students access to limited online materials and resources. Access is optional, as online participation is likely to be a minor component of study.

3. Web-Enhanced is where a paper or course expects students to access online materials and resources. Access is expected, as online participation is likely to make a major contribution to study.

4. Web-Based is where a paper or course requires students to access the accompanying online materials and resources. Access is required, as online participation is required.

It is the institutions' responsibility to report the level of e-learning use to the MoE once a year through their Single Data Return (SDR) reporting (2008a).

The original intention of this data analysis was to treat the responses to the question as qualitative responses. The answers to this question were mixed. Although the link to the SDR MoE Internet Use Classification website was provided prior to the interview, the e-learning managers did not generally have the figures to hand. In many cases the managers explained that these statistics were monitored and maintained by the staff in the student administration and records department and not by their own staff in the e-learning department. Although the data were not originally intended for use as numerical values, in the majority of cases the managers were able to provide the percentages for each of the different MoE levels. Only in four cases were the percentages not supplied in a format that could be compared to the other institutions.

Other e-learning managers pointed out difficulties in accurately assigning courses to the different levels in the current MoE Internet Use Classification. In some cases, it was because there were issues of how to differentiate the levels. For example, one e-learning manager indicated that the perception of the difference between Level 2 – Web-supported and Level 3 - Web-enhanced was difficult to gauge because lecturers don't contact the e-learning team as "*they don't see a significant change from what they used to be doing*". There is some ambiguity in terms of what is meant by the terminology used. As one e-learning manager discussed, "*does providing a resource online mean that the students are 'expected' or 'required' to access it online?*" It is of interest that the MoE has proposed changes to the classification structure that may resolve this ambiguity (2010).

Still others indicated difficulty in determining what was meant by "e-learning". For example, some institutions use video-conferencing links between campuses. The managers were uncertain whether or not video-conferencing was considered e-learning. Others wondered if class based e-learning activities should be considered as part of the percentage of courses in the web-supported category.

With this background as the basis for interpreting the values provided by the e-learning managers, the best approach is to consider the numbers as an estimate of the percentages in each of the categories.

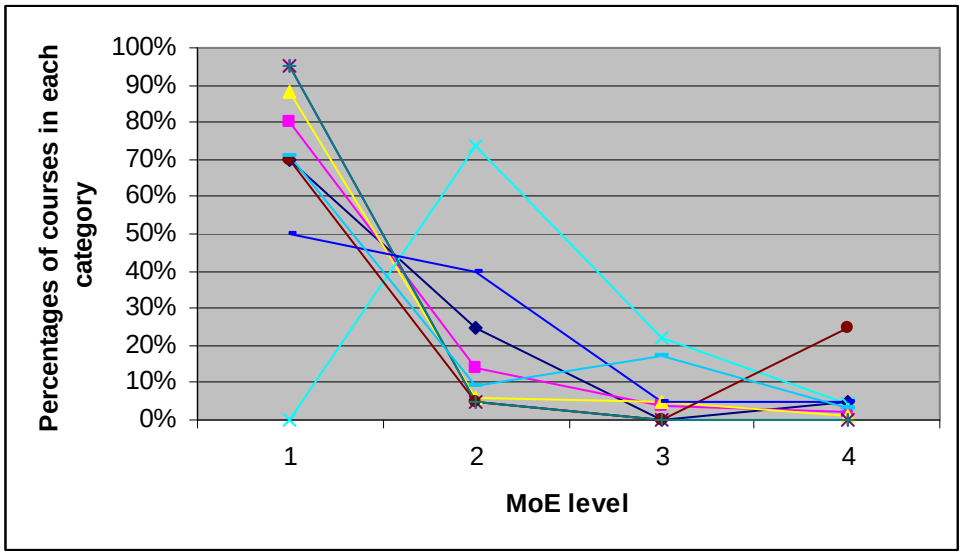

Figure 4.4. Estimate of percentages of course in the MoE Internet Use Classification.

In Figure 4.4, each line represents an institution. It is clear from this graph that most of the vocational institutions that took part in this study follow a general trend where the highest percentages are courses that do not have any web access for students and the other categories' percentages decrease as the level increases. There are two institutions that do not follow this trend and have more courses with web access than those without. In one institution in particular all courses offer some web-access. This follows anecdotal evidence of a two-fold push by many institutions. The push was first to have most or all courses/programmes with some web-access on their LMS. Second the push was to move courses up the levels of the MoE Internet Use Classification through offering some of the courses in a more blended format.

4.3 CHAPTER SUMMARY

The numerical values captured in both the lecturers' survey and e-learning managers' interviews have been analysed in this chapter. The data analysis has examined trends that occurred in the vocational institutes sector of New Zealand. It will be compared with trends found in recent literature in Chapter 6.

Further analysis on the more qualitative responses in the e-learning managers' interviews will be discussed in the next chapter using a grounded theory approach to determine what institutional factors may affect the lecturers' practices discussed in

the scales. The data analysis includes links between lecturers' perceptions and the overall institutional perspective given by the e-learning managers.

CHAPTER 5
RESULTS: E-LEARNING MANAGERS' INTERVIEWS

As discussed in Chapter 3, data were collected from two different sources - the lecturers and e-learning managers of 13 vocational institutes in New Zealand. The collection process is described in Chapter 3 and the interview questions discussed in Section 3.4. Analysis of the data collected from the second group is presented in this chapter. The interview responses from the e-learning managers were analysed using a grounded theory approach. This process was described in detail in Chapter 3. Briefly the process for grounded theory is to complete three stages of coding; open, axial and selective. In the analysis, these stages are followed to examine the responses of the e-learning managers and possibly create new theory.

The questions for the interviews were framed from general concepts identified in the preliminary stages of the literature review. As described in Chapter 3 in Section 3.1, the original intention was for the questions to be sent out as a questionnaire. However, it was evident that an interview would lead to more in-depth responses for the e-learning managers. As such, the selection did not follow the traditional grounded theory approach where data from an initial sample are analysed and further sampling is undertaken until the researcher deems that the sampling is complete. Instead the sample of e-learning managers was limited due to time and consent restrictions.

5.1 PROFESSIONAL DEVELOPMENT CONCEPTS

As discussed in Chapter 3, the first stage of open coding is to identify concepts within the data. The first theme explored was that of concepts related to professional development. The first phase was to examine the interview questions related to this theme. There are three questions in the e-learning managers' survey that cover professional development. The first question relates to how e-learning professional development is offered. The second refers to the professional development approaches the e-learning managers feel are the most effective methods. The final question relates to how the lecturers learn about new technology and teaching practices. This final question was asked in order to gain some insight into how lecturers perceive their responsibility in terms of keeping up with technology and

teaching. Each of the questions contributed background to what is offered to lecturers wishing to use e-learning in their teaching.

5.1.1 Open Coding Process

The first stage of grounded theory analysis is open coding. Open coding identifies common themes or concepts within the data. The steps involved in identifying those concepts are explained in detail in as discussed in Section 3.8.1.3, but are listed here for easy reference:

1. Identify in interviews any questions that relate to concept.
2. Identify any questions that relate to a similar concept.
3. Search for text in interview transcripts related to concept.
4. Search for text in interview transcripts that related to similar concept.

The e-learning managers' responses outlined a number of different types of professional development. Among these were sessions that related to e-learning, technical skills and teaching practices. There was a great deal of overlap between the codes that related to professional development, first in the terminology used and second in terms of the distinction between informal/formal and internal/external.

5.1.1.1 Terminology used by the e-learning managers

In coding and categorising the questions, specifically the question about what type of professional development works best; there were a number of different responses such as "*small group*"; "*one-to-one*"; "*skills training*"; "*just-in-time (JIT)*"; "*workshops*"; "*school/project based*"; "*building learning communities*"; "*peer support*"; and "*external experts*".

It was interesting to note the fact that the e-learning managers often used different terminology to identify similar concepts. For example, it is not clear if the use of the terms "*JIT*", "*on-demand*" and "*one-to-one*" refer to the same type of professional development, but it would appear they are very similar concepts, one interviewee referred to this type of training as "*opportunistic*". Additionally, many e-learning managers used the term small group, department and school somewhat interchangeably, although one made a clear distinction, particularly about ongoing

support, "*The approach that has the most impact is the professional development at department level, where staff can support each other.*"

Due to the overlap of these terms, it was sometimes difficult to distinguish between a formal structured or informal training session. The next section examines this issue further.

5.1.1.2 Structure of the Professional Development –Internal Training

All of the e-learning managers responded that their institutions offered some form of professional development for lecturers wishing to use e-learning. As discussed in the previous section, the descriptions provided by e-learning managers tended to relate more to the staff numbers involved than in specifics about the training. Over two thirds of the e-learning managers discussed the concept of offering "*professional development sessions*", yet did not outline what was covered in these sessions. As there was such a cross-over of what is meant by each of the terms, it was sometimes difficult to determine the topic of these offerings. In other words, it was unclear whether they were focused on pedagogy or technical skills. In one case, the e-learning manager was very specific about what was presented,

> *They combine training on the learning management system and theory on constructivism to give tutors philosophy that they can take into other parts of their teaching.*

In at least four other cases, interviewees reported on components of the institution's professional development programmes that were exclusively based on face-to-face teaching models and not related to using e-learning tools. This may be an indication of the fact that in their institutions, e-learning fits in with the overall approach of professional development sessions.

However, half of the e-learning managers did specifically mention some form of technical skills. One of the e-learning managers felt that it is important to focus on technology skills as he/she thinks the lecturers need to "*get this sorted before*" the instructional design phase. Another e-learning manager echoed this sentiment, indicating that the LMS skills -based sessions were deemed to be valuable, "*The feedback has been very positive. Really its been the hands-on sessions that have been*

the most useful." One interviewee felt there was not enough focus on technical skills in the professional development programme.

Duration of the training was not always made explicit. It ranged from one hour, two or three days, one week or longer. The shorter the session, the more specific the topic tended to be, "*training which is catered to what the tutors [lecturers] need to know based on how they're using e-learning*". The shorter sessions tended to be confined to technical skill demonstrations as described above. In contrast, the longer duration professional development components were focused on pedagogy and concepts of community building. One interviewee discussed the concept of a community of practice within a department that had ongoing long-term activities, where "*participants were building learning communities*".

Tertiary teaching qualifications are generally offered internally, although they are often more formal as they result in a qualification. Six of the institutions identified their tertiary teaching qualification as having e-learning components. As outlined in the literature review, in Section 2.6.4, tertiary teaching qualifications are compulsory for all new lecturers. This was identified by one e-learning manager as an opportunity to expose new staff to e-learning: "*The tertiary teaching qualification has a large component of e-learning material and this is compulsory for all academic staff*". Another e-learning manager identified the fact that lecturers may go on to use e-learning themselves as a result:

> *There has also been an emphasis on the use of the LMS and flexible learning issues as part of their adult education courses. There are quite a few opportunities coming out of that for tutors [lecturers] to actually experience e-learning as students and to subsequently use these tools and concepts in their own courses.*

Although the qualification was compulsory, one e-learning manager expressed concern that the e-learning components have only recently been introduced, "*there a number of staff who completed the qualification a long time ago who have missed out*".

5.1.1.3 Structure of the Professional Development – External Training

The concepts that fit within the external training were self study and external courses/programmes, which overlapped a great deal. However, the distinction appeared to be that self study was by way of reading, research or higher degree qualifications, "*Internet or other study, for example Masters, etc*." while other lecturers were involved with external study in e-learning specific courses or programmes. The e-learning managers of seven of the institutions indicated that their staff were involved in external study, ranging from at least one credit bearing course to participation in one of two national certificates in e-learning.

An additional type of external e-learning professional development identified by the e-learning managers was conference attendance. Five e-learning managers indicated that staff were encouraged to attend conferences. Four of the five mentioned e-learning specific conferences and LMS specific conferences that are held in New Zealand. The remaining interviewee mentioned a conference that was more focused on generic teaching and learning practices.

Having visiting speakers speak at the institution was another form of professional development. Three of the e-learning managers discussed bringing e-learning experts to their institution to offer professional development for their staff. For example, one stated, "*These e-learning professionals (generally from other ITPs) run sessions for staff.*"

5.1.1.4 What Professional Development Works Best

It was interesting to note that e-learning managers provided more than one answer to the question relating to what professional development works best, which may indicate a diverse approach. The responses to this question included many of the approaches discussed in the last section. One approach was to offer shorter term training for more immediate need or problem solving. In one institution, although there was formal professional development sessions scheduled, they were "*not often well attended*"; therefore the e-learning manager felt that "*The one-to-one support probably works the best*".

Other e e-learning managers' approach felt that longer term training and support for schools/departments was most effective. As one interviewee stated:

> *This includes a series of workshops that builds on an agreed baseline. The self-identifying champions start to appear and then it becomes a whole programme/school commitment, which is best for students.*

The variety of professional development provided by the e-learning department obviously served to cater for different needs. Two comments by e-learning managers summarised this trend. One stated, "*Each of these approaches works well at each of the different levels. They all work and they're all needed*".

Another stated:

> *Each approach has different benefits, project based is great for developing individuals who can go on and help others or inspire others. Department work is good for communities of practice, JIT helps solve problems and two hour training sessions help introduce new features or technology.*

5.1.1.5 Mentoring and Champions

The concepts of mentoring and champions were originally included in the professional development area. As they were subsequently found to have strong links with other concepts in the analysis, these are considered separately in this section.

The area of mentoring support was made up of two aspects, mentoring and the concept of champions. Mentoring was taken to mean on-going assistance to the lecturers by either the e-learning manager; another individual within the e-learning team or someone within the institution that has identified e-learning skills or experience. The latter group of individuals is often called champions within the e-learning profession (Holtham, 2005). The champions were generally based within schools/faculties and were those individuals that had strong skills in e-learning technology or the pedagogy that accompanies this technology. In most cases, these individuals were the early adopters of e-learning. One interviewee indicated that their organisation's approach had changed over time, "*originally it was intended that they should have high technology, now there is more emphasis on mentoring*".

Of the thirteen e-learning managers, only four indicated there was a formal structure to the champions' role and in one case some champions had received workload or time release, "*At various times, there were individuals in schools who had a workload allocation to support staff*". Seven e-learning managers indicated that there were champions but it was an informal structure. The remaining two interviewees reported that there was no champion/mentoring structure.

There was concern expressed by at least one e-learning manager about "champion burnout" where the mentoring "*put a lot of undue pressure on these people and distracted them from their teaching*". This was particularly so as they often did their mentoring on top of their own role. In a study completed in the UK, Holtham echoes this sentiment, indicating it is very difficult to maintain a "network of champions" (2005).

5.1.1.6 Other Types of Support

In addition to professional development, mentoring and champions there were other types of support that were provided to lecturers. One type was technical support, where assistance was provided to both staff and students through a help desk, or through help files and guides. The help desk might be run through the IT service department, but generally the help files and guides were written by the e-learning managers or members of their team. In some cases, these files were modified from existing sources,

> *There are also online tutorials on how to use the LMS, including instructions, screen shots. These have been adapted from open access sources.*

In at least five cases these help files were adapted from LMS specific help files created as part of a national e-learning project.

Three interviewees indicated that their technical support approach provided student specific assistance at orientation sessions at the start of a course or programme accompanied by a student guide. One interviewee felt, "*Usually by the end of an hour long session, the students have gained enough confidence that they don't need it [the guide] any more*."

Further to the methods listed above, additional information was made available through the use of e-forums and newsletters. This information and advice was a mix of professional development or technical assistance. In one case, the e-forum was "*a facilitated network, a chat area where online facilitators can share ideas*". Five e-learning managers indicated that their institutions used e-forums and two used newsletters to promote e-learning.

5.1.2 Axial Coding Process - Creation of a Professional Development Category

As discussed in Section 3.8.1.4, the next stage in the grounded theory analysis is axial coding, grouping concepts into categories.

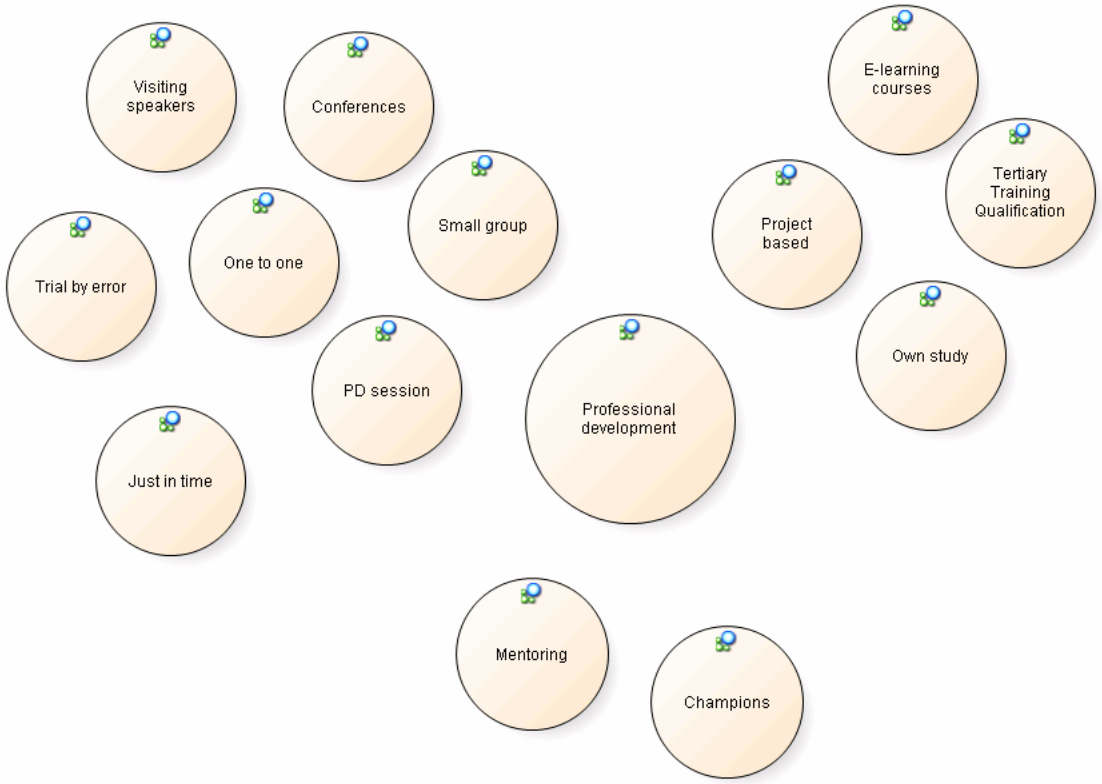

Figure 5.1. Model showing clustering of Professional development category**.**

Figure 5.1 depicts the clustering of the Professional development category. This diagram and others in the chapter diagrams were created using modelling feature in the Nvivo software version 8 (2008). Each of the types of professional development could be considered as dimensions along a continuum. On the left hand side of the diagram are those concepts of more individualised learning, training or support, such

as just-in-time, one-to-one, trial and error. These represent more short-term training. Toward the right hand side of the diagram are the occurrences of the longer term professional development approaches like project-based or perhaps more formalised (courses or qualifications or in some cases external) training, concepts such as e-learning courses, own study, and tertiary teaching qualifications. Finally, moving outward is the grouping of champions or mentoring implying that there is an ongoing interaction with the e-learning manager/adviser or peer and the lecturers.

5.1.3 The Support Categories

Once the professional development category was established the next phase was to collapse additional codes that were related to professional development into new categories:

- Professional development
- Technical support
- Information sharing
- Mentoring support

These four categories are areas that e-learning managers generally have control or a greater deal of impact over, either through their own department or an affiliated department like the IT help desk. As previously discussed, technical support included resources that provided assistance with the technical aspects of e-learning such as provision of help desk, help files/FAQs, provision of orientation and guides. Information sharing included both technical and pedagogical assistance using tools such as newsletters and e-forums.

5.2 ORGANISATIONAL ISSUES

The model in Figure 5.2 identifies that a number of concepts fit more generally within the context of organisational issues. These concepts are discussed in the following sections with the intention of presenting these issues through both the open and axial coding process of the grounded theory approach.

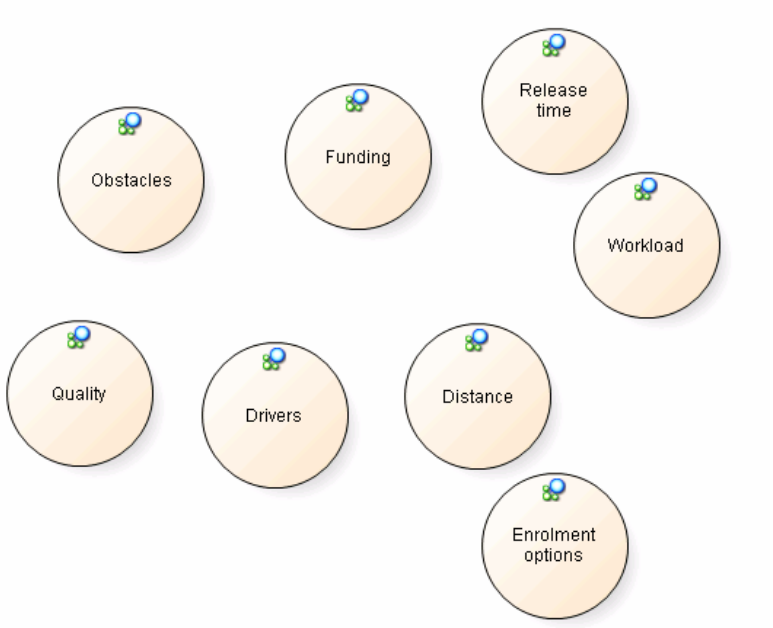

Figure 5.2. Concepts associated with the Organisational Issues theme.

5.2.1 Funding

Responses from the e-learning managers indicated that funding came from three different sources:

- School/faculty budgets
- Internal centralised contestable fund
- External funds

Funds from the school/faculty or department came out of the yearly budget that was received from the institution. As one e-learning manager identified this funding as "*part of business as usual*", it can be assumed that this funding covers smaller projects, like a programme re-development or individual courses.

From 2006, the TEC introduced changes to the vocational institutes' funding model. Instead of receiving funding based exclusively on the number of EFTs, the new funding model is made up of three components: EFTs component, capital and capacity infrastructure (Tertiary Education Commission, 2007b). The model is referred to as the Quality Re-investment Programme (QRP). At least three

interviewees listed this as the source for the institutions' centralised contestable funds and five other institutions discussed the fact that development funding had been received from centralised funding, "*some courses that are being developed receive funding from the management because this has been requested*".

The final type of funding is that of external funding. This external funding is distinct from the government funding through the QRP model. Two e-learning managers identified the external funds as business links; three identified the funding source as eCDF. Additionally, two interviewees identified funding from the Industry Training Organisations (ITOs) associated with their programmes. These projects tend to be larger whole programme developments as indicated by one e-learning manager's statement that money was received as "*external funding to develop an entirely online course [programme]*".

Although the e-learning managers did not generally discuss whether the funding referred to learning resource development or time release, four of the interviewees discussed the fact that the budget covered lecturer workload and release time.

Five of the e-learning managers discussed the criteria required to receive funding, but as these tended to overlap with the drivers for e-learning they will be discussed in the next section.

5.2.2 Drivers for E-learning Use

One of the questions in the e-learning managers' interview related to what drives the use of e-learning in courses. In the coding process, it became evident there were number of different drivers that led to the implementation of e-learning in a course or programme. The range of responses is illustrated in Figure 5.3.

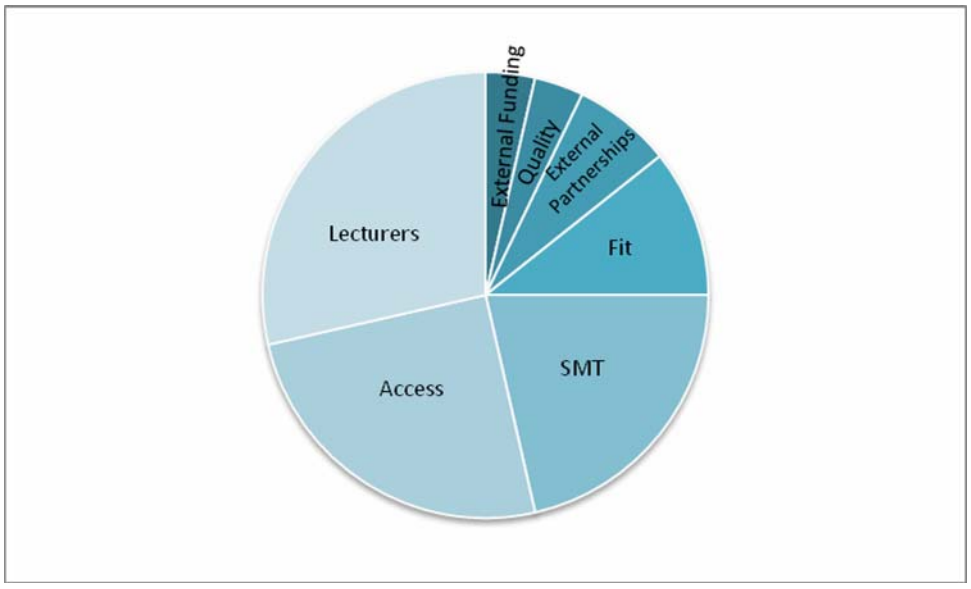

Figure 5.3. E-learning drivers.

Although grounded theory does not necessarily focus on the frequency of words (Bringer et al., 2006), in this instance, it is appropriate to present the information in a pie chart as it provides some insight into the proportion of e-learning managers that provided the response. These factors were both internal and external to the institution. The majority of the time, it was the staff who were the main drivers for e-learning. Typically it was the lecturers that made the choice, but in some cases it was the Senior Management Team (SMT). The views of one e-learning manager summarised many of the responses, "*sometimes it is tutors [lecturers], other times it will be a manager or management*".

The level of the e-learning use may be dependent on who is the main driver. One e-learning manager indicated that:

> *The level of e-learning that will be used links in with who will make the decision. If it is web-based, then the decision is made at the head of school or management level … For a web-supported or enhanced, it's the tutor's [lecturer's] decision, although more heads of schools are encouraging tutors [lecturers] to use the LMS.*

Access was another of the main drivers. One interviewee indicated an online programme was being developed to match working students' needs, "*they want their*

study to fit around their work". However, the need to focus on access as a driver varied between institutions, as one interviewee stated,

> *The institution is moving toward quality as access is now considered a given. Access is less of a focus and quality is the main consideration.*

Fit related to two different aspects, first whether or not the course suited e-learning and second if it was there was a market for it. As one e-learning manager indicated it depended on two factors: "*Viability – if its suited to e-learning; Market demand – if industry requests it*".

One external factor cited by an e-learning manager was the government agency that provides funding for the vocational sector; he/she did not qualify whether it was through national policy or direct influence. The other external factor listed was partnerships or collaborations, as one interviewee indicated it was "*external collaboration or partnerships that provide the driver*".

5.2.3 Quality Concepts

There was a question in the interview that explicitly related to quality. Additionally, quality was also a concept that was mentioned by the e-learning managers throughout the interviews. There were three underlying concepts discussed in the quality coding process:

- scrutiny of blended and online courses during the approval process
- institutional approaches to student evaluations
- other methods of measuring success and quality.

Most e-learning managers found that their institutional programme approval process appeared to set higher expectations for blended and online courses/programmes. At least eight of the e-learning managers discussed this fact. For instance, one interviewee indicated that "*e-learning is under the microscope*". Another reported that:

The quality for the online courses has generally been at a higher level than many of the institution's courses. The approvals group often ask for more information on the online courses.

On the other hand, there was one e-learning manager who expressed concern about an increase in courses going on the LMS meant that "*the onus has gone back on the tutor [lecturer] and the school to ensure quality rather than the e-learning department to enforce it*".

The second focus regarding quality related to the institution's evaluation of courses. The majority of the interviewees discussed the concept of course evaluations as the way to measure the success of the programmes. One respondent discussed the fact that the institution has changed the evaluation process. "*The survey for the online students is a variation of the onsite student survey. There are different questions on this survey more specific to online delivery.*" A further seven e-learning mangers indicated that there would be changes at an institution level to their quality management and evaluation systems to incorporate evaluation of e-learning components of courses/programmes. One e-learning manager felt that "*this change would need to set up procedures for re-developing courses that would include some analysis about why e-learning is being introduced*".

The final focus was other methods of measuring quality. In addition to student evaluations, two interviews indicated that the successful completion of project outcomes and timelines could be used as a form of evaluating programmes that were introducing e-learning. One interviewee stated that the increased number of courses using e-learning was also used as a measures of success. A further four e-learning managers considered indicators of student retention and success in the programmes using e-learning as a measure of the quality of the courses/programmes.

5.2.4 Obstacles and Constraints

One of the questions in the interview asked about the factors that constrained the institution's ability. Obstacles to further adoption fit into three main areas:

- lack of enablers

- lack of capability
- barriers

The lack of enablers included three factors: funding, time and e-learning personnel. Five e-learning managers identified funding as being an obstacle to adopting e-learning. Lack of time was identified by three e-learning managers as a constraint. Two identified lack of e-learning personnel as a further constraint, one stating, "*There is a lack of expert resources*".

The lack of capability was two-fold. First of all, it was the lack of lecturers' skills. One interviewee commented that "*A lot of the time the barrier is around staff having a very low level of IT competency.*" Second were the limitations of the technical infrastructure. One interviewee identified the limitation as "*slow and unreliable internet connection*".

The final area related to barriers. These barriers were in terms of the SMT and lecturers. Two e-learning managers felt that the SMT did not understand the implication of the effort involved. One commented that, "*The managers lack insight into how long it actually takes. Very often the e-learning adviser is not brought into the project until it is too late and the job is rushed."* Two other e-learning managers felt one barrier was the lack of vision by the SMT. One comment was, "*We don't have a shared vision of what we want to achieve with e-learning or guiding our approach to adopting e-learning.*" The last barrier was due to lecturers' resistance. Four e-learning managers discussed staff resistance, one indicating that "*the tutors' [lecturers'] perspectives are that they don't want to use e-learning*".

Figure 5.4 depicts how the three types of obstacles are related, where the initial lack of enablers and capacity results in barriers to e-learning adoption and use.

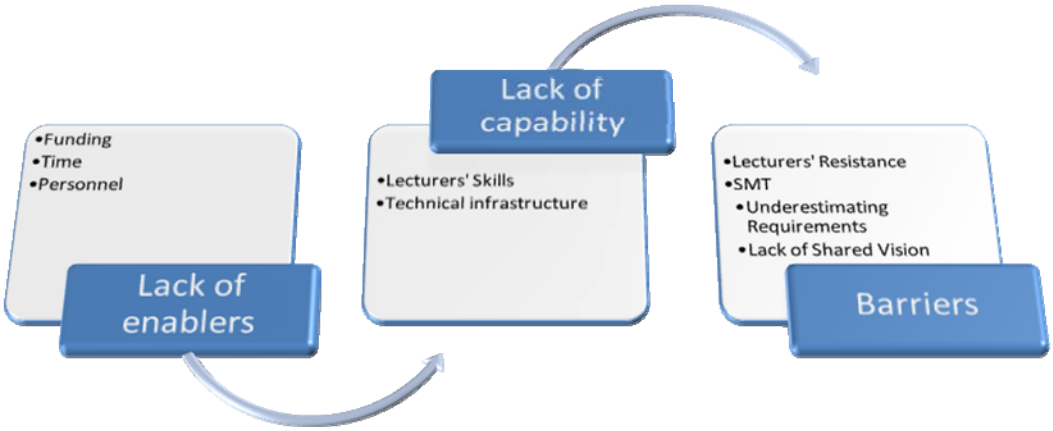

Figure 5.4. Obstacles to e-learning adoption.

5.2.5 Workload

There were two questions in the interview that related to workload and time release. Workload in the context of the interviews meant the lecturers' time spent teaching, marking, office hours and responding to student queries. Responses indicated that at the time the interviews were conducted, most of the institutions had come to some agreement on workload for online teaching. However, the majority also indicated that they had not finalised their agreements. Eleven of the interviewees indicated that there was some consideration given for online teaching. In most cases it meant that the workload for an online course was considered consistent with the workload of a campus-based course. Two e-learning managers stated that there were allowances made for staff new to e-learning and that these lecturers received a reduced teaching load. For example, "*the exception is that people new to e-learning need to have additional time to learn skills, even if they have teaching experience. They get a reduced workload just as new tutors do*."

However, even within institutions who had agreements there appeared to be some inconsistency in how workload was allocated between schools/faculties. One e-learning manager indicated that "*There have been a few attempts at the workload*

plan; in some ways it is not advantaging those courageous enough to be trialling e-learning."

5.2.6 Release Time

The same issues of consistency were discussed in terms of release time. Release time in the context of the interviews generally meant the lecturers' time spent developing/re-developing their courses, either on their own or as part of a development team. There appeared to be different approaches in the institutions involved in the study. At least nine of the interviewees indicated that time release was based on the size of the "*project or development*". One interviewee stated that lecturers have release time allocated in "*officially recognised projects*". In one case; lecturers were paid instead of receiving release time. An additional problem of release time was raised by two interviewees, that of the difficulty in being able to find staff to cover the individual lecturer's teaching. One stated, "*the difficulty is back-filling the tutor [lecturer] responsible for the course if they are the one doing the development. It is hard to find someone with the same skills.*" Only one interviewee indicated that his/her institution did not allocate release time.

5.2.6.1 Time Issues

As discussed in the previous section, the Staff Release Time and Workload Issues concepts were quite clearly linked. Responses from the e-learning managers indicated they perceived the concepts as actually two dimensions within the same concept – the total lecturer workload. This workload included time release which was associated with time spent in the initial development of the course. As stated by one interviewee, "*Staff get release time based on development/re-development of courses*". The workload also included the time allocated for the lecturer to teach the online course, "*the general approach is that the workload should be assumed to be equivalent to face-to-face teaching*".

5.2.7 How Courses are Offered

Two of the questions related to how courses were offered. The first question related to the institution's background in offering distance courses. Overall, only two of the institutions had more than 5% of their courses that could be classified as distance

indicating the majority of institutions did not have a history of distance provision.

The second question related to the flexibility of enrolment into programmes at the institution and whether students could select self-paced options. At least eight of the interviewees indicated that most courses at their institutions had cohorts of students. The concept of cohorts was discussed in Chapter Two in Section 2.6.3.2. In this context; cohort is taken to mean a grouping of students based on a starting date for the course. Traditionally, institutions have enrolled students in cohorts for semester based courses. To introduce greater flexibility six institutions have allowed students to enrol into monthly cohorts, instead of having to wait until the beginning of a semester.

Linked with flexible starting dates is the concept of flexible deadlines. Although five interviewees indicated that there was some flexibility for students to negotiate deadlines, the majority of e-learning managers were concerned that flexible deadlines had an adverse effect on student success. In one institution there appeared to be a dichotomy between staff and student enrolment. One interviewee stated that "*Staff and professional development can be fitedt around what the staff want, it can be accommodated anytime*". Even when flexible deadlines were considered, deadlines could generally not be extended beyond a calendar year.

The concepts of distance provision, flexible enrolment and flexible deadlines all describe the way that students undertake their study. Therefore the concepts were combined into one category, Flexible delivery options, in the axial coding stage of the analysis.

5.2.8 Finalising the Organisational Issues Category

With the collapse of the codes into categories, the final stages of axial coding for the organisational issues were completed. Further examination of the relationships within the category and discussion of their implications is located in Section 5.5.

5.3 TYPE OF DEVELOPMENT

Although project development and lecturer development were originally identified as separate codes, they could be considered dimensions of one category. Strauss and

Corbin describe dimensions "as locations along a continuum" (1990, 1998, p. 71) when describing the properties of codes. If the type of development is considered the property, then it could be considered to sit along a continuum. At one end is the lecturer simply adding a resource in order to fine tune a course. At the other end is where major course and programme re-development sits. One e-learning manager provided a useful summary:

> *If it is single resource in a course that is already well developed, it is generally up to the individual tutor. Anything larger than that it is a project based approach and the e-learning team has to ensure they are properly resourced.*

5.3.1 How Programmes are Developed

As discussed in the previous section, the development tended to occur within two distinct frameworks – either lecturer directed or in a project format. If the development was limited to adding resources to a web-enhanced course (MoE Use Classification), the changes were completed by the lecturers themselves or with limited assistance from the e-learning department. As one interviewee indicated, "*e-learning staff will assist individual tutors with adding resources and the level varies a great deal, depending on the skill and interest of the tutor.*"

Department groups or programmes typically followed a project development approach. As one e-learning manager commented, "*The programmes that are offered completely online are almost a faculty [department] on their own. They use a project based approach to develop courses.*" The e-learning managers did not comment directly on the structure of the project teams, but it can be assumed that they would include a representative from the e-learning department and a subject expert.

5.4 FINALISING THE AXIAL CODING – HOW THE CODES FIT

Finalising axial coding is achieved by collapsing codes into categories. Each of the concepts in the three areas has been collapsed based on the commonalities between the concepts. *Figure 5.5* indicates which codes have been included in which categories in the axial coding stage:

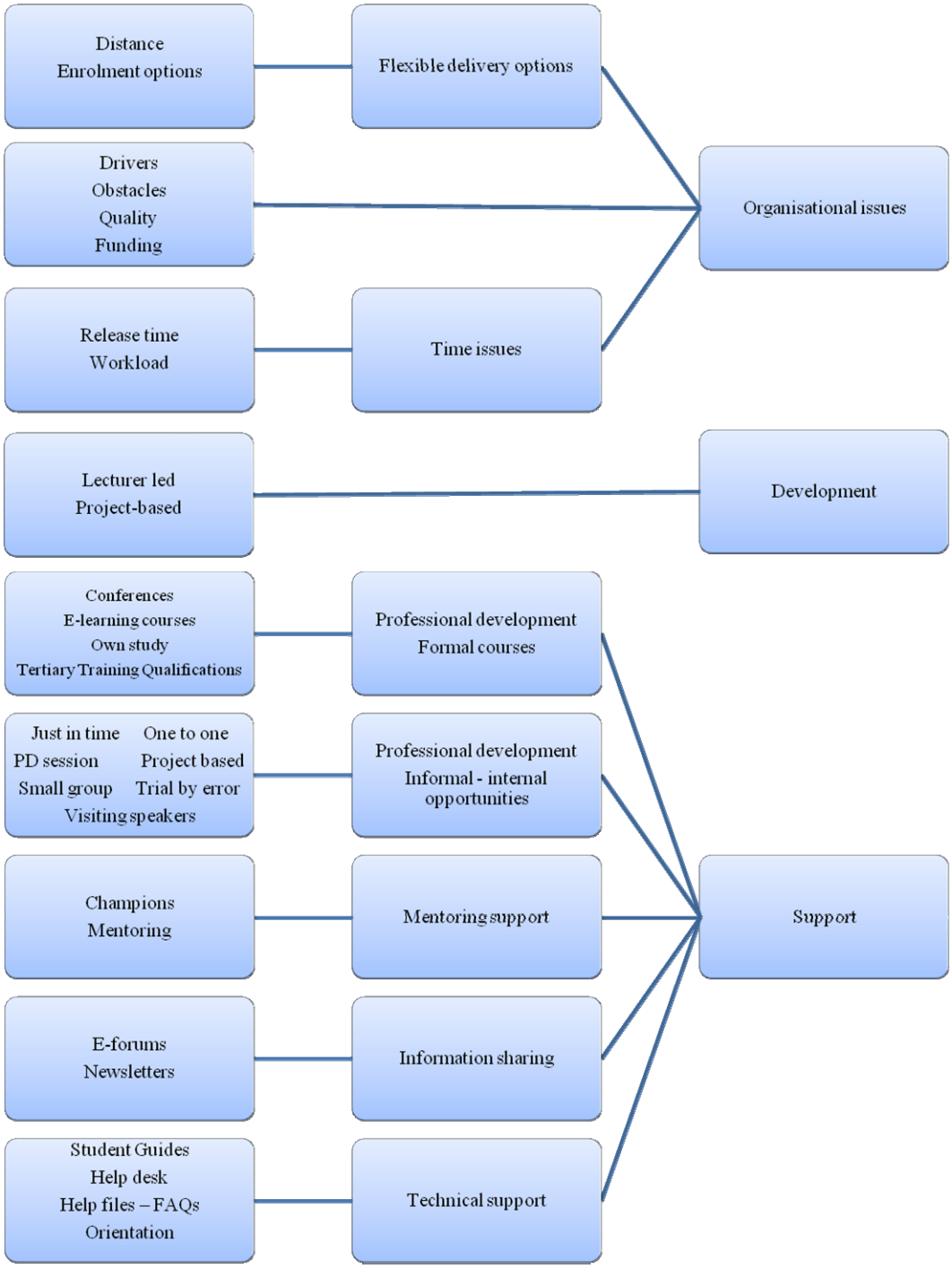

Figure 5.5. Codes in category.

5.5 SELECTIVE CODING

Through the process of selective coding, the remaining categories were considered and their relationships explored. Many questions that had arisen during the process of open coding and axial coding through the use of memos where re-considered in light of the selective coding:

- Is there a baseline of organisational support in ongoing course development which includes some professional development sessions?
- Is there a difference in this support based on the levels of development?
- Does project development always lead to online courses?

5.5.1 Relationships with the Organisational Issues Theme

In order to answer these questions, models were established to examine the relationship between the categories of organisational issues, development and professional development.

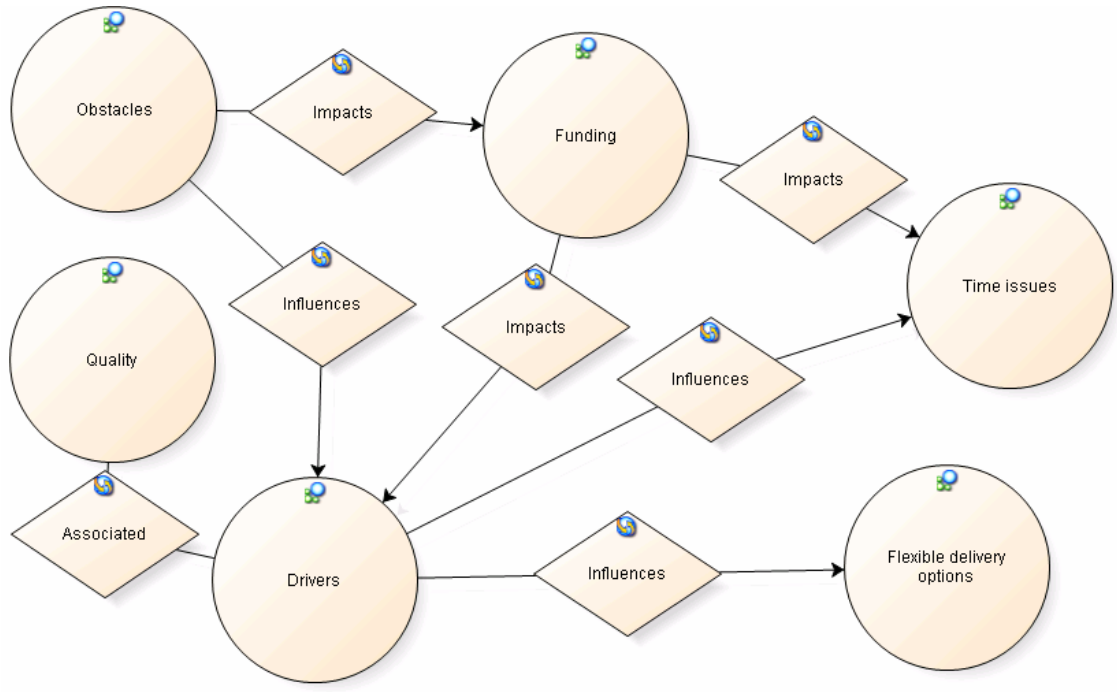

Figure 5.6. Model showing organisational issues relationships.

The first model to be considered is the one depicting the categories within the organisational issues theme. Figure 5.6 illustrates how the concepts (circles) have been grouped together and outlines the relationships between them (diamonds). Each relationship is described within the diamond to indicate how the concepts affect each other. The three significant types of relationships are ranked in the following order, with the most affective relationship ranked first:

1. Impacts – where factors in the primary concept significantly affect the secondary in ways that may determine the outcomes of the actions. For example, a change in funding may have substantial impact on the driver of an e-learning development.

2. Influences – where factors in the primary concept have some effect on the secondary concept, but do not determine the outcomes. For example, increased access (within the drivers' concept) may influence flexible delivery options but may not determine what options are offered.

3. Associated –where the primary concept is considered within the secondary concept as is the case of quality being listed by the e-learning managers as one of the drivers for e-learning development.

It is evident from Figure 5.6 that the concept of drivers for e-learning development is the most significant concept within the organisational issues theme. Each of the other concepts has some relationship or linkage to it. As discussed in Chapter 3, one of the goals of the selective coding stage is to identify a core category. Although this model explains how organisational issues are related, it does not explain the role of the drivers in development and support.

5.5.2 Relationships between Organisational Issues, Development and Support

The next model to be considered, in Figure 5.7, is that of the relationships between the drivers for e-learning development and the other categories. As with the model in Figure 5.6, the circles in this figure represent categories and the diamonds the relationship between the categories. In addition to the relationships discussed in the previous model, an additional type of relationship has been introduced with this model:

- Determines – where the outcomes of the secondary category are not only impacted by the primary category, but they are specifically directed by that category.

This model in Figure 5.7 provides a framework for how the choices that drive e-learning development are supported by the e-learning department.

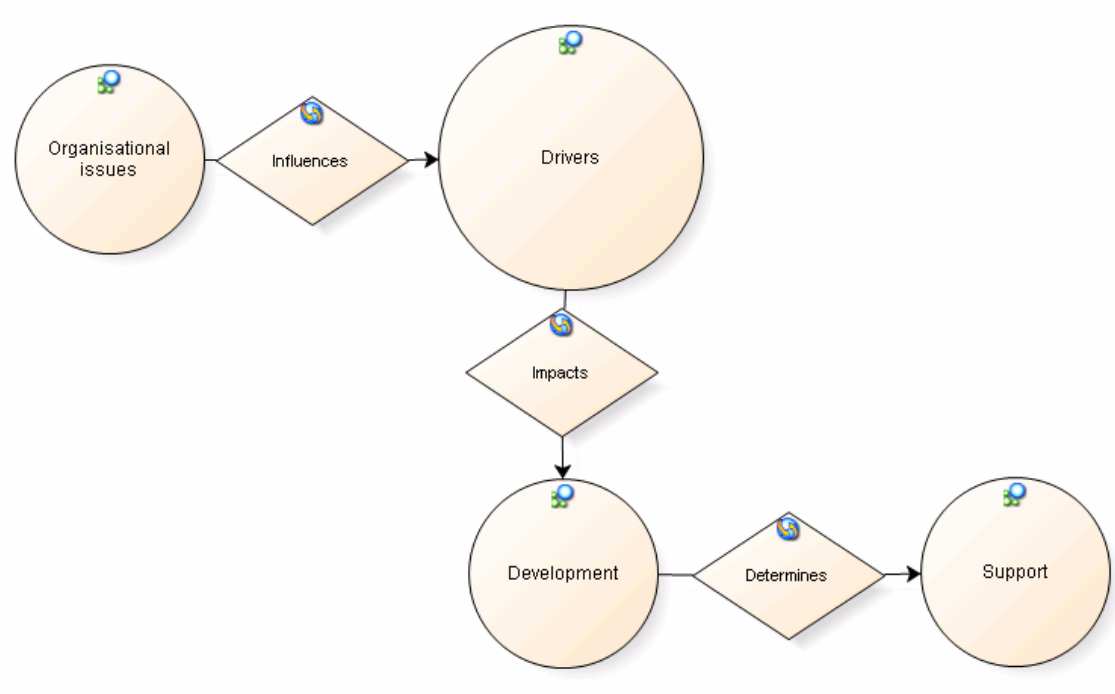

Figure 5.7. The relationship between categories.

There appeared to be a parallel process for developing courses/programmes, depending on the driver for the development. One stream was the avid lecturers as drivers who use more informal/internal professional development to build their skills to develop their courses. They do not ask for additional release time as they see it as incremental changes to their courses. The other stream is where departments work in conjunction with the e-learning department to use a project approach where funding is received either at the school level, ministry or external funding. Therefore, the drivers themselves determine the type of development and support. Lecturer driven initiatives result in minor changes in development while management driven changes result in larger projects.

This dichotomy also reflects the type of support offered. On the one hand shorter duration, less formal professional development was offered for small course changes or minor development. For the larger re-development or new development of programmes, the e-learning managers were involved in coordinating the efforts of staff providing longer term project assistance and mentoring.

Therefore, the factors in the organisational issues category will have some influence on the type of development. This influence is based on: choices about how the course is offered, what monies are available and what agreement has been reached on release time as well as quality issues. Certainly too, the constraints to adopting e-learning will have impact on the type of development that can be undertaken. However, it is the drivers that had the most significant impact.

As discussed in the previous section, the selective coding process identifies the central category or in the words of Strauss and Corbin, the story line. In vocational institutes, the narrative is that the drivers for the e-learning development establish the level of change to courses which impacts the type of development. In turn, the type and extent of development determines the type of support that will be offered to the lecturer/department.

In re-visiting the questions in Section 5.5, the first two refer to the type of support offered.

- Is there a baseline of organisational support in ongoing course development which includes some professional development sessions?

- Is there a difference in this support based on the levels of development?

As discussed above, support is offered at all different levels of development/re-development and is generally catered to the complexity of the development, ranging from short technical skills sessions to project team work. Therefore, there is a baseline support for all activities.

- Does project development always lead to online courses?

This question relates to the type of re-development or development that might occur in a project. Although it does appear that the majority of projects result in online courses, there were no conclusive statements from the e-learning managers to indicate that whether or not the programmes were entirely online.

5.6 CHAPTER SUMMARY

Through a grounded theory approach to data analysis, this chapter has described trends and issues identified by the e-learning managers who were interviewed for this study. The resulting analysis explored the relationship between the professional development and additional support that was offered to the lecturers in the organisations. It also identified other organisational issues that impacted e-learning development.

CHAPTER 6
DISCUSSION/INTERPRETATION

The purpose of the study was to determine whether the use of e-learning would contribute to student success. The many factors that were identified in the literature were used as a basis for the questions in both the lecturers' surveys and the e-learning managers' interviews. As stated in Chapter 3, the triangulation of sources and methods provided an opportunity to compare and contrast the responses and perceptions of the e-learning managers and the lecturers. The purpose of this chapter is to compare the three results from the sources of information: surveys, interviews and literature in this study..

The information will be compared and contrasted by first examining the student demographics, the programme characteristics, the lecturers' perceptions and finally the e-learning managers' perceptions. From these perspectives, it will be possible to gain an understanding of how e-learning is placed in the vocational sector in New Zealand.

6.1 STUDENT DEMOGRAPHICS

The data analysis of two measures of student demographics identified in the survey was completed in Chapter 4. These factors were student age and student gender.

6.1.1 Student Age and Perceived Success

In terms of the percentage of students in courses using e-learning, there were slightly more mature students.

In this study, the analysis of age and perceived student success determined that there was no significant different between the groups of older (25 years or older) and younger (under 25 years) students. This is in contrast to an overseas study which indicated that more mature students may be more successful in their online study (Allen & Seaman, 2006). Interestingly, a New Zealand study (2005) indicates that under-25 year olds are more successful at study. It is however difficult to contrast these data in this thesis with both the overseas and New Zealand study because they may not be similar in terms of their e-learning components. The overseas study by

Allen and Seaman (2006) is based upon online courses (more than 80% online). The responses from the lecturers in this study indicated that the courses were blended and not completely online. The New Zealand study by Scott (2005) did not stipulate the type of study, whether it was campus-based or online. It may simply be that most of the courses in this study were blended, therefore the mix of classroom-based and online study may have contributed to the similarity in the groups' means and explain why they do not follow the trends in the other studies.

6.1.2 Student Gender and Perceived Success

In terms of percentages, lecturers who taught mixed gender courses or mainly female students were more likely to use e-learning tools than lecturers who taught mainly males.

In the data analysis in Chapter 4, the mean for perceived student success was higher for male dominated courses. However, considering there were relatively few courses that were male dominated, this may not be significant. The means for the other two groups (female dominated and mixed gender) are very similar. Therefore, it would appear that this follows the trends identified in Section 2.8, where lecturers did not feel students' gender had a significant impact on their success in courses that use e-learning.

6.2 PROGRAMME CHARACTERISTICS

The next area to discuss is the programme characteristics that were analysed in Chapter 4. These include type of and level of course/programme.

6.2.1 Type of Course/Programme

The type was characterised by the mix of theory, practical and work-based components in a course/programme. As might be expected lecturers are more likely to use e-learning tools in theory-based course or those with a mix of theory and practice. Lecturers were unlikely to use e-learning tools for work-based courses. Research within the New Zealand tertiary sector indicate that courses and programmes that are considered academic represent the largest portion of online courses and that practical courses are only a small portion of the courses that indicate

e-learning use (Ham & Wenmouth, 2007). One research study (Clayton, Elliott, Saravani, Huntington, & Greene, 2008) on work-based e-learning indicated that there are a number of perceived barriers limiting the number of companies using e-learning, However, this particular research study which focused on workforce training, did not specifically discuss students who were in a work-based environment as part of their vocational education. Therefore, the results from the lecturers' survey regarding the limited of e-learning in work-based training are consistent with recent literature.

6.2.2 Level of Programme

In the final section of the survey, lecturers were able to identify the percentage of courses at different qualification levels.

6.2.2.1 Percentages of Courses at Each Level

From the data analysis there was an equal spread of lecturers who used e-learning tools in certificate, diploma and degree qualifications. As there is generally fewer degree programmes offered at vocational institutes, this would indicate that lecturers on degree programmes are more likely to use e-learning tools than lecturers on other programmes. There were relatively few post-graduate programmes using e-learning tools, but this trend may be explained by the fact there are a low number of post-graduate programmes offered in vocational institutes. This is in contrast with the trends in American universities which follow a different pattern according to a study by Allen and Seaman (2006), where graduate programmes have the highest percentage of online use and degree level programme are less likely to have online components. However, there may be a risk in contrasting this study with the American study though due to difference in both sample size and types of institutions.

6.2.2.2 Perception of Success at Each Level

Analysis was performed to identify the level at which the lecturers were more likely to see the use of e-learning as benefiting their students' success. Lecturers teaching mainly diploma, degree level or a mixed level perceived e-learning had a positive effect on student success. It followed the trend in Scott's study which indicated that

those students at higher levels were more likely to succeed. However, as discussed above it is difficult to contrast the studies as Scott's study did not specifically discuss whether the programmes were classroom based or not (2005).

6.3 TRIANGULATION OF SCALES WITHIN THE LECTURERS' SURVEY

This section discusses the links between the lecturers' responses to the other two sources – the literature review and the e-learning managers' interviews.

The first scale, Use of E-learning Tools will be discussed in Section 6.6 later in the chapter alongside the responses of the e-learning managers to the interview questions about the number of courses that fit within the MoE Internet Use Classification. The second scale, Course and Professional Development, will be discussed as part of Section 6.4.

The third scale is General Teaching Practices. Items that had high means were those that lecturers had control over, in other words those aspects of their courses that they could change or improve, these included making clear the learning outcomes and giving prompt feedback, two of the aspects identified by the Prebble et al study as contributing to student success (2005). There were lower means in the areas that related to non-teaching issues, such as library and evaluation, areas that were not related directly to teaching. These particular practices, linking to student support/library and evaluation of courses are measured as part of Marshall's eMM analysis (Marshall, 2006). Following these practices indicates a higher level of institutional e-capability. However, there may be some risk in interpreting the low means of these items as an indication of lower e-capability. Rather it may simply be a case that the lecturers leave it to the departments who are charged with looking after those aspects of student learning and support.

The fourth scale, Communicating with Students, refers to the way lecturers interacted with their students. The highest means were for items that related to student interaction and encouraging student questions. Higher student interaction was identified by many studies as being a key component of successful courses (Chickering & Gamson, 1987; Salmon, 2005; Shea et al., 2003). Although, the e-

learning managers indicated that pedagogy was included in the institutions' e-learning approach, it was not clear whether these specific practices of encouraging student interaction and questioning were highlighted.

This section has discussed the links between the lecturers' survey and the literature outlined in Chapter 2. The next section discusses the support provided to the lecturers by their institutions and relates how the lecturers' perceptions relate to the e-learning managers and the literature.

6.4 LEVEL OF SUPPORT PROVIDED TO LECTURERS

The e-learning managers were interviewed to ascertain the level of organisational support. The level of support is depicted in Figure 5.1 which was described in Chapter 5. In order to test the validity of the model through triangulation, it is important to consider it in light of not only the lecturers' responses in the scales, but also the additional comments that were provided in the survey.

Lecturers' responses in the scales aided in the analysis of how lecturers perceive professional development as assisting their use of e-learning tools. The scale that provided the closest link was the Course and Professional Development scale. As discussed in Chapter 4, a large number of lecturers attended e-learning professional development as well as professional development in LMS skills and ICT skills. Many lecturers also identified that they had participated in a course where they were an online students. However, there is no indication from the additional comments whether or not these courses were specifically related to e-learning technology or pedagogy.

Other items in the Course and Professional Development scale related to the organisational issues category and more generally how courses were developed.

6.4.1 Lecturers' Perception of their Role in Course Development

The items in Table 6.1 are included to provide some understanding of the lecturers' perceptions of these concepts. Although they were briefly discussed in Chapter 4 and their impact on perceived student success examined, they are included here to explore the link between the model in Figure 5.7 and the lecturers' responses.

Table 6.1

Comparison of Items from the Course and Professional Development Scale

Item	Strongly agree	Agree	Not sure	Disagree	Strongly disagree	Number
I developed my e-learning courses by myself.	30%	30%	7%	24%	8%	83
I was/am given time off to develop my e-learning courses.	2%	7%	9%	39%	42%	85
I was/am expected to develop my e-learning courses while I teach my normal work load.	42%	38%	10%	7%	2%	86

It is apparent that the majority of lecturers who completed this survey developed their own courses. This observation is supported by the additional comments on this scale. Only one lecturer's comment indicated that he/she had not developed the course, "*I am not responsible for the development of the programme I teach*". Consequently, it would appear that the type of lecturers who completed the survey were "e-learning enthusiasts", a term used by many e-learning managers in their interviews. As indicated in Section 5.3 Type of Development, the e-learning managers would identify this type of e-learning use as typified by relatively minor re-development of courses/programmes. Therefore, the majority of lecturers involved in this study would make use of e-learning expertise available as an opportunity to develop their own skills, but not for large scale development of their courses and programmes.

6.4.2 Lecturers' Perceptions of Time Issues

The other two items in Table 6.1 relating to release time and development workload reflect this same type of re-development where their perception might be "business as usual". Many of the additional comments of the lecturers' survey indicated that lecturers did not receive release time. Initially, this might have been perceived as lack of organisational support, but as indicated by the e-learning managers, time release was only assigned for projects. Comments that were highlighted in Chapter 4 in Section 4.1.4.2 indicated that lecturers believed re-developing their course/programme using e-learning tools was part of their workload. Therefore

although the lecturers received no time allocation, they did not perceive a need for additional time.

Studies indicate that many lecturers do not receive release time for e-learning development and workload for teaching (Bright, 2008; McNickle & Cameron, 2003; McPherson & Montelpare, 2000; Mupinga & Maughan, 2008). However, there is some indication in the e-learning managers' interviews that there have been negotiations undertaken to commit time to the development and teaching of courses using e-learning. It is not clear whether this time was negotiated as a result of a project framework or as part of an informal agreement. It would appear that more formalised the approach to e-learning implementation and use, the more formal the approach to time release and workload allocation.

6.4.3 Fit of Lecturers' Perception with E-learning Managers' Perception

In summary, when contrasting the lecturers' perceptions of the support they receive from the institution, it may appear that the lecturers have somewhat different views than the e-learning managers. The main differences relate to how the courses were developed and time release. This is consistent with the model in Figure 5.7, as it describes small scale lecturer development such as that undertaken by the lecturers in this study. There may have been a few lecturers who were involved with larger project-based development described by the e-learning managers. However, based on the lecturers' additional comments, the majority of lecturers were not.

6.5 SUPPORT AND ORGANISATIONAL ISSUES IN THE E-LEARNING MANAGERS' INTERVIEWS

This section explores the consistency of the model described in Figure 5.7 with the literature review.

6.5.1 Professional Development

The model discussed in Section 5.1 Professional development concepts reflects studies identified in the research (Hegarty et al., 2005; Prebble et al., 2005). One study, (Prebble et al., 2005) recognised the spectrum of shorter term courses and long term leading on to qualification. The skills based session were similar in nature to

those identified by Hegarty et al. (2005). Comments made by the e-learning managers concerning the effectiveness of department training links closely to the concept of "in-situ" training identified in the work of Prebble et al. (2005).

The model in Figure 5.7 shows a one-way relationship between development and professional development. The professional development may have some effect on development; lecturers who receive e-learning training will be able to complete small scale re-development of their courses. The lecturers who responded in this survey may have been quite likely to use e-learning to be innovative in their teaching. Therefore, the professional development was used to gain skills for the re-development but did not necessarily drive the development. This is reflected in the lecturers' positive responses to the item relating to developing their e-learning courses in order to be innovative in their teaching. This echoes the views of Hegarty et al. (2000) who see the professional development as a means of gaining efficacy to complete re-development.

Questions raised in the data analysis of the e-learning managers' interviews related to the type of support offered by the institution. It was clearly identified in Chapter 5 that there were different levels of support base upon the type of re-development or development that occurred, shorter skills based and then long term mentoring and champions. This is consistent with practices described in the literature (Hegarty et al., 2005; Prebble et al., 2005; Salmon, 2005).

6.5.2 Funding

As discussed in Chapter 5, there were three sources of funding, department funds, centralised contestable funds and external funds. As indicated in the literature (Holtham, 2005), there were department funds used for smaller scale development, but there does appear to be a move by institutions toward centralisation of funding for e-learning implementation particularly with larger-scale projects (Higgins et al., 2008). The third category of external funding was also recognised in the literature, in particular the eCDF which was developed by the government to encourage growth in e-learning (Ministry of Education, 2007a).

6.5.3 Drivers

The drivers identified in this study (Section 5.2.2) were consistent with the literature in the field. Suitability or fit of the programme to e-learning was one of the elements recognised by Bates that should drive the use of e-learning (2000). Another driver identified in the literature was national strategy (Ministry of Education, 2004), which was echoed by one e-learning manager. Student access, one of the main drivers identified in the data was consistent with the MoE's objective of increased access for students (2004). Two other main drivers were cost saving and attracting new enrolments (Anderson, 2004; Carr, 2000; Zempsky & Massy, 2004). Only one of the e-learning managers identified cost-cutting in the data, not specifically as a driver but more as an obstacle to e-learning adoption. The concept of market demand was discussed by two e-learning managers, one in terms of a "niche market" and the other in terms of "industry request" both of which may be assumed to lead to increased enrolments.

6.5.4 Quality

One of the three focuses of the MoE's Interim E-learning Framework (2004), was to use e-learning to improve the quality of learning. It would appear that this is echoed in the responses of the e-learning managers. Quality was highlighted as a driver for improved learning. Additionally, as described in Anderson et al. (2006), in the third stage of e-learning implementation, there were changes to institutional approaches to research and evaluation. In many of the e-learning managers' interviews there was an indication that the institutions are changing their evaluation processes to evaluate the e-learning components of their courses and programmes. In Marshall's e-Maturity Model, the process of including an evaluation of e-learning within a course re-development was a crucial component of the quality process to improving e-learning (2005).

6.5.5 Flexible Delivery Options

Although there is a move to introduce some flexibility in enrolment, it appears that the majority of institutions are encouraging students' enrolment into monthly cohorts. Literature in Chapter 2 identified some of the issues with flexible enrolments

and the concept of distance (Chickering & Gamson, 1987; Salmon, 2005; Shea et al., 2003). It highlighted the fact that institutional constraints need to be balanced against increased choice. E-learning managers interviewed for this study expressed concern about success when too much flexibility was introduced, particularly in terms of deadlines. Monthly cohorts provide a sound alternative to the self-paced approach of distance learning by creating student interaction, an aspect that has been identified by a number of studies as contributing to student motivation and success. However, if students have expectations of being able to complete studies according to flexible deadlines and are being asked to enrol and complete in monthly cohorts, the institution may encounter some resistance. Further research into this area would need to be conducted to determine how students' expectations of self-paced study are being managed.

6.5.6 Obstacles

As discussed in Chapter 5, the obstacles to e-learning were grouped in three main areas, lack of enablers, lack of capability and barriers. Each of the obstacles to adoption was consistent with issues identified in the literature. They included lack of vision (Marshall, 2005) and lecturer resistance either through lack of perceived benefit or concern over workload (Hegarty et al., 2005; McPherson & Montelpare, 2000; Mitchell et al., 2005). E-learning managers in this study discussed the performance of the ICT infrastructure as a limiting factor. In another study though, the limiting factor was identified as security, not performance (Hegarty et al., 2005). The e-learning managers' interviews identified that expert personnel was a key enabler. The White and Milne study identified that it was important to have the right mix of skills to support e-learning (2005). Not having personnel with these skills or sufficient number of these experts would certainly limit e-learning development and so reinforces the views expressed by the e-learning managers.

6.6 LEVEL OF E-LEARNING USE

One of the goals of the government in provision of funds through the eCDF projects was to build the tertiary sector's capability. Providing web-access for courses was identified as one measurement of the e-learning capability of institutions identified in the Ham and Wenmouth evaluation of the first round of eCDF projects (2007).

The first scale in the lecturers' survey was intended to measure the lecturers' level of e-learning use in their courses. The highest means in the scale related to making information available to students. One of the lowest means related to using an LMS as an alternative to seeing students. These lecturers' perceptions are consistent with the data reported by the e-learning managers in Section 4.2.2 regarding e-learning use. It would indicate that the LMS is principally still being used as a complement for face-to-face courses.

As indicated in Section 4.2.2, the e-learning managers often found it difficult to classify courses according to the MoE Internet Use Classification. In spite of the difficulties, most were able to provide some general idea of the statistics. To determine the accuracy of these statistics, they were compared with the statistics that were reported in the Ham and Wenmouth eCDF evaluation (2007). In a similar manner to this report, the measurement was the percentages of courses that have web-access in each of the categories of the MoE Internet Use Classification. However, unlike this report the data source for the values of the percentages came directly from the MoE's SDR statistics, not from the institutions themselves. The Ham and Wenmouth study (2007) included all institutions – universities, wanagas, PTEs and vocational institutions who were involved in the first round of eCDF projects. Recognising these limitations, it is still appropriate to compare the averaged estimates from the e-learning managers' interviews with the findings of the original report. Table 6.2 outlines the numbers in each category.

Table 6.2

Percentages of Courses within the MoE Internet Use Classification

Levels	Percentages	
	eCDF evaluation report (2004-05)	Mean of estimated levels from e-learning managers' interviews (2008)
No Access	71%	69%
Web-Supported	20%	20%
Web-Enhanced	7%	6%
Web-Based	2%	5%

It is interesting to note how similar the percentages in the No-Access and Web-Supported categories are. It would appear that the change in the last two categories may indicate one of two trends. Either institutions have changed their interpretations of the levels or they are changing the actual mix of how their courses are being offered. It does reinforce the fact that vocational institutions do not have a high proportion of courses that have some form of web component as 71% of all courses have no web presence. This implies they do not use any e-learning tools for their courses.

It is of interest that the category for web-supported did not change. It may be that many institutions leave the majority of their "e-learning enabled" courses at this level as they are uncertain about where else to place them. Further refinement of the MoE Internet Use Classification proposed for 2011 might ameliorate this situation and lead to more meaningful data.

6.7 CHAPTER SUMMARY

This purpose of this chapter is to match trends in the triangulation of sources. It identified overlapping themes between the literature in the student demographics in courses that use e-learning, lecturers' perception of student success and levels of e-learning. The discussion in the chapter established a great deal of consistency between the lecturers' survey, the e-learning managers' interviews and the literature review.

The next and final chapter outlines the following: the findings of this study, the significance of this study, and the limitations associated with this study. The chapter also provides recommendations for institutions that are looking to develop their use of e-learning.

CHAPTER 7
CONCLUSION

The purpose of this chapter is to discuss the main findings of this study. It also discusses the significance of these findings. In addition, it discusses limitations of the study in terms of research and sample size and makes recommendation for further research that could be conducted within the field of e-learning use in vocational institutes.

Chapter 1 introduced the purpose of the study. The aim was to focus on the support provided by the institutions and how the lecturers' use of e-learning is affecting the success of their students.

Chapter 2 presented a review of literature. It covered the concepts of e-learning and more particularly the use of e-learning in the vocational sector in New Zealand. The literature was drawn from government documents, MoE funded research and journal articles within New Zealand and internationally. It provided definitions of e-learning terminology and theory regarding the use of e-learning in teaching and learning.

Chapter 3 discussed the research methodology of the study. The rationale for using triangulation of sources and sample selection was discussed. The process for the creation of a new research instrument was discussed and reviewed including discussion of the four scales and further student demographic information/lecturers' perception. The use of grounded theory as a basis for data analysis was described and the process was outlined.

Chapter 4 presented the data analysis of the lecturers' survey through statistical interpretation. Tests for the validity and reliability of the new research instrument were presented. Statistical information regarding the means of the four scales introduced in Chapter 3 was also presented. Significant means of the items within the four scales were also discussed alongside additional comments made by the lecturers on the online survey form. Also discussed were student demographic information and programme information which formed the final section of the survey. These included student age, gender, level and type of course (whether practical or theory-based). Each of these elements was then discussed with the lecturers' perception of

student success. In addition to the lecturers' survey, numerical values from the e-learning managers' interviews were discussed.

Further analysis of the e-learning managers' interview was presented in Chapter 5. The analysis was presented through a grounded theory approach. Each of the different levels of coding – open, axial and selective was presented and discussed. The coding produced concepts and categories. Models were presented to describe the inter-relationships between the categories. These models were verified through the use of quotations from the e-learning managers' interviews.

Discussion regarding the triangulation of the three sources: lecturers' survey, e-learning managers' interviews and the literature review was presented in Chapter 6. The data from the surveys and interviews were contrasted with the literature in order to verify the findings of the research.

7.1 FINDINGS OF THE STUDY

As previously discussed the aim of the study was to examine the support offered to lecturers who used e-learning tools in their teaching and to determine their perception of how their use of e-learning contributed to their student success. The findings of this study are discussed within the context of each of the original research questions outlined in Section 1.2 Scope of the thesis. A synthesis of these points and summary of the main findings is also presented.

7.1.1 Question 1: Levels of E-learning

The first of the original research questions was "Are there different levels of e-learning? Is it important to make a distinction?". The literature review compared and contrasted two different classifications of e-learning use, that of the OECD (2005) and the MoE Internet Use Classification (Ministry of Education, 2008a). The fact that both organisations created these classifications for the levels of e-learning would indicate the significance of such an attempt at identifying the levels. In addition the MoE established a series of funds to promote the growth in e-learning capability of tertiary institutions (2007a). These funds promoted different aspects of e-learning, providing a platform for institutions to build tools, create resources and promote

national resources for professional development. The aim of the funds was to improve access and to build innovation and capability.

The first scale in the lecturers' survey was used to measure that capability, particularly in terms of identifying the types of tools that might be used with e-learning. Although these vary in complexity, they may or may not necessarily indicate that a lecturer has moved up the MoE Internet Use Classification structure but did give some indication of how the lecturers were using e-learning. Nonetheless by including the other scales, particularly General Teaching Practices and Communicating with Students, it provides a picture of how the lecturers are using e-learning. The additional comments provided by the lecturers provided further information about the level of e-learning use in their courses/programmes. Therefore, the levels are significant and can be measured. However, as discussed in Section 2.2.2, the MoE Internet Use Classification has some degree of ambiguity. Proposed changes for 2011 should provide further clarification.

7.1.2 Question 2: E-learning Suitability of Different Qualification Levels

The next research question was, "Do these different levels suit different qualification levels or topics?". The responses from the lecturers' survey indicated that lecturers were using e-learning tools at all of the qualification levels that are offered at vocational institutions. However, the percentage of lecturers that used e-learning tools with degree level students was higher than any of the other qualification levels.

In terms of the lecturers' perception of student success, lecturers who taught mainly degree, diploma or a mix of levels felt that e-learning had a positive effect on student success. Lecturers' perception of the effect of e-learning on student success in certificate programmes was not as positive as the other programmes, with a mixed response. However, as only just over a third of lecturers who taught mainly certificate programmes felt e-learning had a negative effect on student success, it would appear that e-learning use is appropriate for all levels of qualification.

7.1.3 Question 3: E-learning Suitability of Different Topics

The third research question was, "Do different topics better suit e-learning? Do vocational institutes offer these topics?". Responses from the lecturers indicated that

they used e-learning tools in courses that were either mainly theory based or were a mix of theory and practical. As many certificate and diploma level courses are practical-based courses, this would indicate that the use of e-learning tools may be restricted to more theory-based courses within those qualifications, a perspective that was reflected in the literature review.

7.1.4 Question 4: E-learning Suitability of Different Types of Learners

The next research question was, "Do different types of learners better suit e-learning? Do the vocational institutes have these types of learners?". In addition to programme information, the final section of the lecturers' survey included student demographics information including student age and gender. From the lecturers' responses, it was apparent that lecturers were more likely to use e-learning tools in courses that had mainly female students or a mixed gender. Very few lecturers indicated they would use e-learning tools in a male dominated course. As many of the trades' qualifications in New Zealand vocational institutions are very male dominated, this may have significant implications for lecturers who teach on those qualifications.

Analysis of the e-learning managers' interviews and triangulation with the literature review also shed light not so much on the type of learners but more on the type of e-learning environment that would suit learners and contribute to greater student success. In particular, there was discussion on the importance of a cohort within any distance, blended or online courses in Chapter 5 and 6.

7.1.5 Question 5: The Role of Technology in Learning

The final research question was, "Is technology always the answer?". This question was left intentionally broad in scope as the intention was to look at a more holistic approach of the organisation toward implementation of e-learning use in teaching and learning. This question was addressed by a combination of data from both the lecturers and e-learning managers regarding professional development, course development, organisational support and quality issues.

Chapters 5 and 6 discussed the data analysis of the e-learning managers' interviews and the triangulation of these data with the data from the lecturers' survey. The findings from these sources were evaluated against a model of professional and

organisational support that was discussed in Section 5.5.2. This model states that the drivers for e-learning adoption are the most significant factors in terms of organisational support. The drivers determined the type of development, whether it be small scale re-development which was characterised by adding resources to the LMS or a full project approach where significant components of a course or programme were placed online. The professional development approach was then determined by these drivers and the form of development. Generally smaller scale development was addressed through skills-based training, particularly focussed on using the LMS for face-to-face course enhancement. Larger scale projects followed the trends identified in many recent e-learning and professional development studies (Hegarty et al., 2005; Mitchell et al., 2005; Prebble et al., 2005). These professional development approaches included e-learning courses which allowed lecturers to be online studies and additionally mentor-based approaches were the lecturers were part of a project team.

The question then is not simply one of technology, but more importantly what is driving the choice of e-learning adoption for that particular programme or course. Small scale development is driven by the lecturers themselves and will continue to be. In the majority of cases, this is the type of development that is occurring in the vocational institutes. In smaller scale development, the choice to use technology may have more to do with the lecturers' interest in using technology to be more innovative in their teaching and/or responsive to their students' requests and expectations. Larger scale development tends to be driven by issues of access and fit in terms of the type of course and the institutional strategy. Larger scale developments can be assumed to lead to higher levels of e-learning use resulting in blended or completely online courses based on the responses of the lecturers in the additional comments of the survey.

One of the key findings determined as a result of the triangulation of the three sources is that many of the lecturers that completed the survey were involved in small scale development. They generally developed their own courses and did not participate in the larger scale projects discussed by the e-learning managers. This is reflected in the findings that the levels of e-learning use has not increased significantly since these levels were assessed in 2004-05 (Ham & Wenmouth, 2007).

The majority of e-learning tools use is still used to supplement face-to-face courses and programmes. There has been a minimum expansion of distance provision through blended or online courses by the majority of the 13 institutions involved in this study.

This is not to say that there is not a high level of support within the institutions for larger developments. A number of the e-learning managers did outline processes for such development. There is indication that further discussion regarding quality, project selection criteria and evaluation of e-learning use in programmes is necessary within the institutions. Responses from e-learning managers identified some inconsistency in these areas and outlined steps to address these issues.

7.2 LIMITATIONS OF THE RESEARCH

As discussed in the introductory chapter, this study sits alongside other research in the area of perception of the effect e-learning has on student success. As this study only provides an indication of lecturers' perception of student success, it is limited as it does not focus on students' perception of their success.

Additionally, a number of the additional comments in the teaching staff survey indicated that there was some confusion over the terms an "online" course or "blended" course. As discussed throughout this thesis, courses and programmes using e-learning tools can sit along a very wide spectrum of e-learning activity. From the lecturers' responses to the survey, this ranged from a virtual repository of class handouts and resources to blended courses with face-to-face workshops, all the way to fully online courses. The survey was intentionally designed to be generic to all courses taught by the lecturers so as not to make the survey too onerous to complete. The selection of courses to include is often problematic when trying to categorise e-learning use (Marshall, 2006). However, in any future studies, it may be advantageous to break down the questions per course or have the lecturers select one course to report on.

It was not a requirement in the survey for the lecturers to identify their institution. In this study individuals were identified if they provided a return email address which clearly indicated their institution. Perhaps a separate question that may have

encouraged more individuals to identify their institutions may be useful to link institutions with perceptions of e-learning use, professional development and teaching staff expectations.

This study was limited to vocational institutes and more particularly to those institutions that held ITP New Zealand membership at the time of the data collection. Of the 19 institutions approached, only 13 institutions took part. The Chief Executives of the institutions that did not take part indicated that this was due in part to time constraints. Even within the 13 institutions that took part only a limited number of lecturers were involved. Participation in research studies is often problematic and the timing of a major national project within a few months of this study's data collection may have contributed significantly to the lower numbers.

7.3 SIGNIFICANCE OF THE STUDY

This study provides a recent view of how e-learning is being used and supported in the polytechnic/vocational institute sector. Although the study was limited to 13 institutions, there was a mix of larger and smaller institutions within that number. Additionally, if level of support, and therefore level of e-learning use maturity, can be inferred from the number of the individuals supporting e-learning, then there was a good mix of e-learning support within the sample. Qualifications from certificate to post graduate were identified by the lecturers who completed the survey. Therefore, the findings of this study may have implications and recommendations not only within the New Zealand vocational educational sector, but across the wider tertiary educational sector in New Zealand and internationally.

7.4 IMPLICATIONS FOR FURTHER RESEARCH

It may be appropriate to complete another study of this nature with a wider group within the tertiary sector, possibility including universities, wanagas and PTEs. Although each of the types of institutions within the tertiary environment face different issues and constraints, it may be possible to create some common themes in terms of the ways that institutions provide support for e-learning.

From comments made by the e-learning managers, it would appear that e-learning use in courses is becoming more embedded in vocational institutions. Further

longitudinal research would be interesting to determine if the MoE Internet Use Classification levels change. The change may be either more courses moving from having no web access to some access, i.e. moving to higher levels in the MoE Internet Use Classification, or movement within the other tiers. With the proposed changes to the MoE classification, some adjustment and interpretation may be required in order to compare the data across two classifications systems.

Further use of the lecturers' survey might yield a higher number of respondents. If that were the case, it would be advantageous to perform a factor analysis to further test the validity of the instrument and to determine how the items would best fit within the scales.

Further research into how student success is affected by the use of e-learning would be quite useful. Scott identified the problematic nature of measuring student retention and success (2005). His study was based on data from success and retention rates as opposed to this study which was limited to lecturers' perception. Actual data from student results may need to be collected to accurately reflect how e-learning use affects student success. Another issue that adds to the complexity of measuring the effect of e-learning use is how to compare online, blended and face-to-face classes while removing other factors such as lecturers, course content and institutions. Further research which aims to minimise these factors when considering the use of e-learning's effect on student success may yield a greater level of understanding of this area.

7.5 POINTS OF INTEREST

It was interesting to note that there appeared some confusion over the MoE Internet Use Classification in the e-learning managers' interviews. This has been discussed throughout this study. This may be due to the fact that the e-learning manager is the individual responsible for instructional design and strategic planning whereas the individual(s) responsible for reporting the figures to the Ministry may sit in a completely different department. It was not clear from the interviews whether the lecturers were responsible for selecting a level or that it more likely fell to the administrator of the student database and/or LMS administrator. This ambiguity may also be the product of the broad categories identified at each level. The proposed

changes to the classification due to be implemented in 2011 should help resolve some of the issues raised by the e-learning managers.

7.6 CONCLUSIONS

As discussed previously in this chapter, the use of e-learning in the vocational institutes for the most part still restricted to campus-based courses and programmes. In and of itself, this is not an issue as many of the institutions involved in this study do not come from a history of distance provision.

Although predicting the future use of e-learning tools with teaching and learning is outside the scope of this thesis, it is evident that as institutions continue to embrace and embed e-learning, the development approach appears to be two pronged:

- Encouraging those enthusiastic lecturers who continue to move toward using some aspects of e-learning in their courses.

- Creating more online/blended e-learning courses through the development or re-development of courses funded through the school/faculty budget or more centralised contestable funding.

These approaches are determined by the drivers behind the implementation of the e-learning use and will continue to be. With this two pronged approach, the institutions need to incorporate professional development approaches which support both types of development. It would appear from the findings that many institutions are currently offering such approaches.

However, to ensure the quality of any provision involving e-learning tools, it is recommended that government agencies and the vocational institutes themselves continue to create processes for supporting e-learning. Particular areas that were identified in this study were those of the development and evaluation of courses. These processes should focus on both the establishment of projects in terms of criteria for selection, standard workload and time release policies, and an evaluation process that can be incorporated into their larger institutional audit or self-evaluation process.

At a national level, the greater granularity of the proposed changes to the MoE Internet Use Classification should assist in better defining the levels of e-learning use. Stronger links between those individuals who prepare the data for the MoE and those who support e-learning may assist in achieving a true representation of what is happening in the sector.

In summation, there is clearly continued enthusiasm for the use of e-learning in programmes in the vocational education sector. The responses from the lecturers' survey provide a picture of continued interest in innovation and a willingness to improve their practices by exploring new ways of teaching with e-learning. The key message for vocational institutes is to find a way to nurture that enthusiasm to provide quality programmes that make full use of the potential e-learning tools may provide.

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APPENDICES

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APPENDIX A: CONSENT LETTERS/EMAILS

LETTER TO CHIEF EXECUTIVES OF INSTITUTES OF TECHNOLOGY AND POLYTECHNICS OF NEW ZEALAND (ITP NEW ZEALAND) MEMBER INSTITUTIONS

4 April 2008

«Title» «First_Name» «Last_Name»

Chief Executive
«Company_Name»
«Address_Line_1»
«Address_Line_2»
«City» «Postcode»

Dear «Title» «Last_Name»

My name is Amy Wilson, Flexible Learning Coordinator at the Bay of Plenty Polytechnic. I am currently studying for my Masters degree at the Science and Mathematics Education Centre (SMEC), Curtin University of Technology. This letter is to request your permission to interview members of your staff through telephone interviews and online questionnaires as part of a research study which is being completed as the requirement for my master's thesis. The study has been approved by Curtin University's Ethics committee (HR 2/2007).

The study is to determine how flexible learning is used within your institution. I have identified flexible learning to include traditional distance learning, online learning and the use of e-learning tools. My sample is intended to be staff from those institutions that are members of the Institutes of Technology and Polytechnics (ITPNZ).

There are two target groups in the study, the first being individuals that are responsible for supporting teaching staff using flexible learning. For this purpose, I have identified the individual(s) from your institution, whom I know through the ITPNZ eLearning Forum: *«Flexible_learning_manager»*. If you believe this is not the most suitable individual(s), could you please forward this letter to the appropriate person and ask them to contact me by email. This group will complete a telephone interview with me (approximately 20 – 30 minutes) regarding the number of courses, the type of programmes, the roles within the flexible learning department and the type of training and support that is provided to the teaching staff.

The other group is the teaching staff using flexible learning. This group will complete a questionnaire regarding the level of courses they teach, the types of students they have, the type of flexible learning tools they use and their own comfort level with technology and flexible learning.

The data will be collected through an online questionnaire (approximately 20 – 30 minutes). Staff will be able to access it through a link that will be emailed to your flexible learning manager. The data will be kept safe through the use of a password protected database.

The process of collection, including timelines, is described below:

- E-learning managers
    - Email consent form and questions (21st April)
    - Ring at a mutually agreed time (between 25th April – 15th May)
    - Subsequent phone conversation to follow up on any further queries (between 15th June and 15th July)
- Teaching staff working with flexible learning
    - Email with online survey link emailed to staff (via flexible learning managers at individual institutions) (from 5th May)
    - Completion of online surveys (between 5th May – 15th June)
    - Subsequent emails to follow up on any further queries (between 15th June and 15th July)
- Transfer of data to database on secure drive (15th July)

- Analysis of data (from 15th July)

The data will be maintained on the survey server until the questionnaire is completed by participants, which should be approximately two months. The data will then be transferred to a database on a password protected area on disk. Once the final report is published, the data will be stored in my supervisor's office at Curtin University of Technology.

The final report will only report on trends between institutions generally and will not identify individual institutions. Participants will remain anonymous and will not be identifiable in any publications. They will also have the right of withdrawal at any time should they so wish.

If you have any queries about the study please do not hesitate to contact me or my supervisor as below. All enquires can also be made to the Secretary at hrec@curtin.edu.au quoting Reference Number HR2/2007.

I look forward to hearing from you.

Yours sincerely

Amy Wilson

Researcher: Amy Wilson

Email: amy.d.wilson@postgrad.curtin.edu.au

Supervisor: Prof. Darrell Fisher
Email: D.Fisher@curtin.edu.au

LETTER TO E-LEARNING MANAGER (INDIVIDUAL SELECTED BY CHIEF EXECUTIVE)

Thanks for agreeing to take part in my study for my Masters degree at the Science and Mathematics Education Centre (SMEC), Curtin University of Technology. You are being invited to take part in a research study which is being completed as the requirement for my master's thesis. It will be nice to have you involved with my research. Here is the participant information for you, please let me know what time might be suitable to conduct the telephone interview between 30th April – 15th May:

The purpose of the research is to explore the impact of e-learning. The study proposes to answer fundamental questions by identifying current trends in the sector to answer questions about what type of courses use e-learning, the level of its use within these courses and what type of learners are succeeding in e-learning courses. Data will be collected from three different sources:

- Literature Review: review existing studies
- E-learning Managers (telephone interview): Establish baseline of support and professional development
- Tutors (online survey): Determine how they are using e-learning

The interview will establish a baseline of the support that is provided at your institution. The questions are focused on professional development, technical assistance and organisational support for e-learning. The preliminary questions are to get an idea of your institution's use of e-learning and the type of deliveries offered.

Your involvement with this study would be through a telephone interview with me at a time that is mutually convenient. I anticipate this will take about 30 – 40 minutes of your time and hope to conduct these sometime between April 25th and May 15th. A couple of days prior to our arranged telephone conversation I will send through the questions. Should you need to be interviewed later to obtain further understanding or clarification this will take about 30 minutes of your time (I anticipate this to be sometime between June 15th and July 15th, once again at a mutually convenient time).

The other group that will be involved in the study is those tutors that use e-learning/flexible learning in their teaching. They will be asked to complete an online survey with questions relating to how they use e-learning/flexible learning in their teaching. I am asking for your assistance in forwarding on an email to these tutors. This email outlines the study and provides a link to an online survey for them to complete. I will forward this email and link the first week in May.

All information gathered from you and the tutors at your institutions will be kept confidential and private, retained originally in a secure online database and then eventually in a locked storage unit at the Curtin University of Technology and when any information is presented in journals or my thesis, pseudonyms will be used to ensure you remain anonymous and will not be identifiable in any publications.

If you have any queries about the study please do not hesitate to contact me or my supervisor as below. All enquires can also be made to the Secretary at hrec@curtin.edu.au quoting Reference Number HR2/2007.

I ask for your consent to participate in the study and seek your cooperation and support for my work. It is your decision whether or not to take part. If you decide to take part, you can still withdraw at any time, without giving a reason.

In consideration of your time, I will be offering a prize draw for all participants with the chance to win two free movie passes to your local SkyCity or Rialto cinema. Should you agree to participate, please respond to my email, indicating your consent. You will have opportunities to see drafts, make amendments and comments on the reports later. Many thanks in anticipation of your assistance.

Yours sincerely,
Amy Wilson
Researcher: Amy Wilson
Email: amy.d.wilson@student.curtin.edu.au
Supervisor: Prof. Darrell Fisher
Email: D.Fisher@curtin.edu.au

EMAIL TO TEACHING STAFF PROVIDING ONLINE LINK TO SURVEY (FORWARD ON BY THEIR E-LEARNING MANAGER)

My name is Amy Wilson and I work in the New Zealand Polytechnic sector. This email has been forwarded to you by the person who is responsible for e-learning/flexible learning at your polytechnic. You've received it because you currently use e-learning tools in your courses.

I am currently studying for my Masters degree at the Science and Mathematics Education Centre (SMEC), Curtin University of Technology. You are being invited to take part in a research study which is being completed as the requirement for my master's thesis.

The purpose of the research is to explore the impact of e-learning. The study proposes to answer fundamental questions by identifying current trends in the sector to answer questions about what type of courses use e-learning, the level of its use within these courses and what type of learners are succeeding in e-learning courses. Data will be collected from three different sources:

- Literature Review: review existing studies
- E-learning Managers (telephone interview): Establish baseline of support and professional development
- Tutors (online survey): Determine how they are using e-learning

The study will involve you answering a questionnaire which will take approximately 20 minutes. Should you be interviewed later to obtain further understanding or clarification this will take about 20 minutes of your time at a time that is mutually convenient. All information gathered from you will be kept confidential and private, retained originally in a secure online database and then eventually in a locked storage unit at the Curtin University of Technology and when any information is presented in journals or my thesis, pseudonyms will be used to ensure you remain anonymous and will not be identifiable in any publications. The following is from the ethics approval form for the study:

"This study has been approved by the Curtin University Human Research Ethics Committee (Approval Number HR 2/2007). The Committee is comprised of members of the public, academics, lawyers, doctors and pastoral carers. Its main role is to protect participants. If needed, verification of approval can be obtained either by writing to the Curtin University Human Research Ethics Committee, c/- Office of Research and Development, Curtin University of Technology, GPO Box U1987, Perth, 6845 or by telephoning 9266 2784 or by emailing hrec@curtin.edu.au."

If you would like to find out more about the survey and complete it, simply click on the following link: Tutor e-learning survey and you'll be connected to the website to complete it.

If you would prefer to complete a hard copy questionnaire, please email a request with your contact name and address and a questionnaire will be sent to you.

The questionnaire will remain open until 15th June. In consideration of your time, I will be offering a prize draw for all participants with the chance to win two free movie passes to your local SkyCity or Rialto cinema. Many thanks in anticipation of your assistance.

Regards

Amy Wilson

amy.d.wilson@postgrad.curtin.edu.au

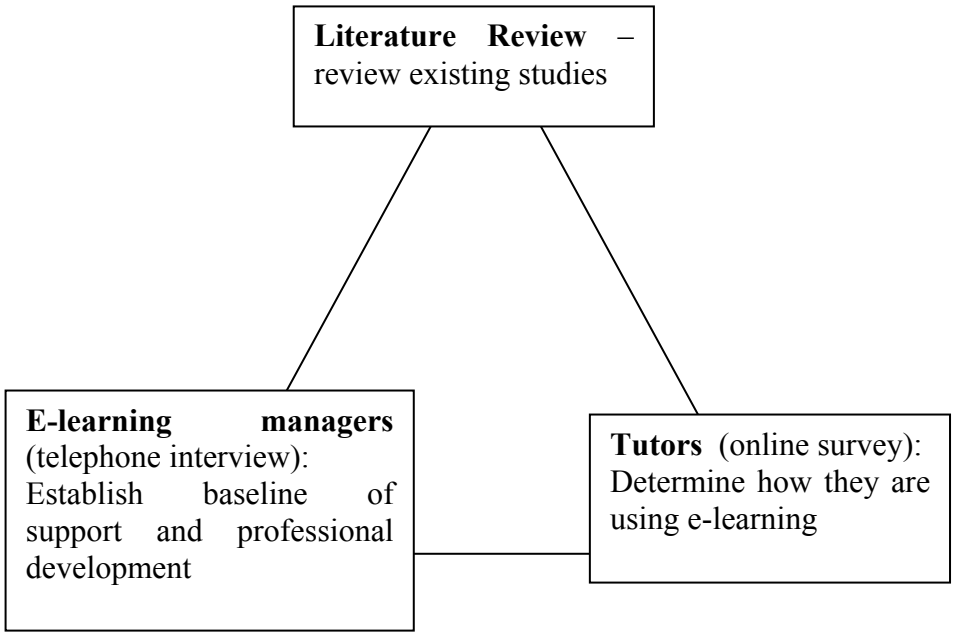
APPENDIX B: E-LEARNING MANAGERS' INTERVIEW QUESTIONS

Questionnaire for thesis study:

"What is e-learning and when should academic staff use it?"

Background to the study

The purpose of the research is to explore the impact of e-learning. The study proposes to answer fundamental questions by identifying current trends in the sector to answer questions about what type of courses use e-learning, the level of its use within these courses and what type of learners are succeeding in e-learning courses. Data will be collected from three different sources:



Thank you for agreeing to participate in this study. As indicated above this interview forms part of the data collection in this study. The interview will establish a baseline of the support that is provided at your institution. The questions are focused on professional development, technical assistance and organisational support for e-learning. The preliminary questions are to get an idea of your institution's use of e-learning and the type of deliveries offered.

Interview process

I have sent the questions through so that you have some time to prepare for our interview. I will ring you at our mutually agreed time to discuss the questions. I have provided some white space following the questions for you to make annotations should you so wish.

INTERVIEW QUESTIONS RELATING TO E-LEARNING

1. What percentage of your institution's courses would be classified as traditional distance courses?

2. What percentage of your institution's courses would be classified as each of the following:

   - Web-supported - online access by students is optional
   - Web-enhanced - online access by students is expected but not absolutely required.
   - Web-based - online access by students is essential to undertaking the course.

   (Definition based on Single Data Return modes from Ministry of Education: http://cms.steo.govt.nz/NR/rdonlyres/456B3628-6DA3-4A41-A7FB-0C1E787C9B93/0/SDRManual2005v71.pdf)

3. Does your institution allow a variety of open enrolment options, for example rolling enrolment and self paced study?

4. What is the principal driver for using e-learning in a course? Who makes that decision?

5. What approach is used when developing courses using e-learning? (for example, Project based, individual tutor, etc)

6. How many staff are involved in supporting students and tutors in e-learning in your institution? What are their roles?

7. Does your institution use e-learning mentors or champions? If so, how are they used?

8. What resources does your institution have to assist students with the e-learning system (for example FAQs/help files)?

9. What professional development in e-learning is offered at your institution?

10. Which of the professional development approaches do you believe has resulted in greater tutor satisfaction, student satisfaction, student success and level of student interaction, please provide some detail.

11. How do the staff in your institution keep up with new technology and teaching practices?

12. How is the development of e-learning courses funded in your institution? What criteria exist when making these funding decisions?

13. What discussion has occurred at your Institution regarding implications for workload?

14. Do staff get release time to develop the programmes? If so, how much?

15. How has e-learning changed your institution's approach to quality assurance?

16. How do you measure the success of your institution's e-learning projects and courses?

17. What constrains your ability to adopt e-learning?

APPENDIX C:
ORIGINAL TEACHING STAFF ONLINE SURVEY

ITP Teaching staff feedback regarding e-learning **Exit this survey >>**

1. Participant Information Sheet

I am currently studying for my Masters degree at the Science and Mathematics Education Centre (SMEC), Curtin University of Technology. You are being invited to take part in a research study which is being completed as the requirement for my master's thesis.

The purpose of the research is to explore the impact of e-learning. The study proposes to answer fundamental questions by identifying current trends in the sector to answer questions about what type of courses use e-learning, the level of its use within these courses and what type of learners are succeeding in e-learning courses. Data will be collected from three different sources:

1. Literature Review: review existing studies
2. E-learning Managers (telephone interview): Establish baseline of support and professional development
3. Tutors (online survey): Determine how they are using e-learning

The study will involve you answering the questionnaire which will take approximately 20 minutes. Should you be interviewed later to obtain further understanding or clarification this will take about 30 minutes of your time at a time that is mutually convenient. All information gathered from you will be kept confidential and private, retained originally in a secure online database and then eventually in a locked storage unit at the Curtin University of Technology and when any information is presented in journals or my thesis, pseudonyms will be used to ensure you remain anonymous and will not be identifiable in any publications.

If you have any queries about the study please do not hesitate to contact me or my supervisor as below. "This study has been approved by the Curtin University Human Research Ethics Committee (Approval Number HR 2/2007). The Committee is comprised of members of the public, academics, lawyers, doctors and pastoral carers. Its main role is to protect participants. If needed, verification of approval can be obtained either by writing to the Curtin University Human Research Ethics Committee, c/- Office of Research and Development, Curtin University of Technology, GPO Box U1987,Perth, 6845 or by telephoning 9266 2784 or by emailing hrec@curtin.edu.au."

I ask for your consent to participate in the study and seek your cooperation and support for my work. It is your decision whether or not to take part. If you decide to take part, you can still withdraw at any time, without giving a reason.

In consideration of your time, I will be offering a prize draw for all participants with the chance to win two free movie passes to your local SkyCity or Rialto cinema. Should you agree to participate, please click on the Next button. In doing this you acknowledge your consent. You will have opportunities to see drafts, make amendments and comments on the reports later.

Yours sincerely

Amy Wilson

Researcher: Amy Wilson

Email: amy.d.wilson@student.curtin.edu.au

Supervisor: Prof. Darrell Fisher

Email: D.Fisher@curtin.edu.au

ITP Teaching staff feedback regarding e-learning **Exit this survey >>**

2. Use of flexible learning, online and e-learning tools.

The first part of this questionnaire contains statements related to your experience as a tutor who uses e-learning/flexible learning in your courses.

Please consider the following statements and how they apply to your experience.

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree	N/A
I use the e-learning system to provide access to resources that I also hand out in class.	☐	☐	☐	☐	☐	☐
I use the e-learning system because I don't see my students in a classroom.	☐	☐	☐	☐	☐	☐
I use the e-learning system to load files for my students to look at (PowerPoints, PDFs, etc).	☐	☐	☐	☐	☐	☐
I use the e-learning system to load files for my students to use (for example Word templates, Excel files).	☐	☐	☐	☐	☐	☐
I use the e-learning system to send/post announcements.	☐	☐	☐	☐	☐	☐
I use the e-learning system to allow my students to submit their assessment(s) online.	☐	☐	☐	☐	☐	☐

I use the e-learning system to provide feedback on my students' assessments.	☐	☐	☐	☐	☐	☐
I use the e-learning system to provide quizzes for my students.	☐	☐	☐	☐	☐	☐
I use the e-learning system to facilitate discussion online.	☐	☐	☐	☐	☐	☐
I use the e-learning system to provide access to simulations/videos.	☐	☐	☐	☐	☐	☐

Would you care to make a comment about any of the statements listed above?

ITP Teaching staff feedback regarding e-learning **Exit this survey >>**

3. Course and professional development.

The following questions refer to how your courses were developed and what professional development you received.

Please consider the following statements and how they apply to your experience.

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree	N/A
I worked with an e-learning specialist to develop the e-learning components of my course.	☐	☐	☐	☐	☐	☐
I developed my e-learning courses because I want to be innovative in my teaching.	☐	☐	☐	☐	☐	☐
I developed my e-learning courses by myself.	☐	☐	☐	☐	☐	☐
I was/am given time off to develop my e-learning courses.	☐	☐	☐	☐	☐	☐
I was/am expected to develop my e-learning courses while I teach my normal work load.	☐	☐	☐	☐	☐	☐
I have enrolled/completed a course in which I was an online student.	☐	☐	☐	☐	☐	☐
I have attended professional development/training in the use of information technology.	☐	☐	☐	☐	☐	☐

I have attended professional development/training in the use of a learning management system (your institution's system - for example: Blackboard, Moodle or similar).	☐	☐	☐	☐	☐	☐
I have opportunities to provide feedback on the professional development I have completed.	☐	☐	☐	☐	☐	☐
I have opportunities to provide feedback on the learning management system (your institution's system - for example: Blackboard, Moodle or similar).	☐	☐	☐	☐	☐	☐

Would you care to make a comment about any of the statements listed above?

ITP Teaching staff feedback regarding e-learning

Exit this survey >>

4. General teaching practice.

The following questions refer to how your courses were developed and what professional development you received.

Please consider the following statements and how they apply to your experience.

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree	N/A
I change my resources each time I run the course.	☐	☐	☐	☐	☐	☐
I often use case studies with my students.	☐	☐	☐	☐	☐	☐
The learning outcomes are published for each topic area.	☐	☐	☐	☐	☐	☐
I provide prompt feedback on assignments/assessments.	☐	☐	☐	☐	☐	☐
I publish course timetables.	☐	☐	☐	☐	☐	☐
I publish instructions for how my students should submit their work.	☐	☐	☐	☐	☐	☐

I provide instructions for how my students should get help.	☐	☐	☐	☐	☐	☐
I provide links to learning support in my course.	☐	☐	☐	☐	☐	☐
I provide links to the library and information literacy resources to students in my course.	☐	☐	☐	☐	☐	☐
I ask my students for feedback on the e-learning components of my course.	☐	☐	☐	☐	☐	☐

Would you care to make a comment about any of the statements listed above?

ITP Teaching staff feedback regarding e-learning

Exit this survey >>

5. General teaching practice (Communicating with students)

The following questions refer to how your courses were developed and what professional development you received.

Please consider the following statements and how they apply to your experience.

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree	N/A
I respond to student queries according to a published response time.	☐	☐	☐	☐	☐	☐
I respond to student queries every time they add a forum posting.	☐	☐	☐	☐	☐	☐
I am comfortable responding to my students' queries on a discussion forum.	☐	☐	☐	☐	☐	☐
I encourage my students to contact me through a variety of methods (forums, emails, telephone and possibly text messaging or Skype).	☐	☐	☐	☐	☐	☐
I understand that online communication is different than face to face communication.	☐	☐	☐	☐	☐	☐
I encourage my students to share their knowledge.	☐	☐	☐	☐	☐	☐

I encourage my students to ask questions.	☐	☐	☐	☐	☐	☐
I value my students' interaction highly.	☐	☐	☐	☐	☐	☐
I feel that students need an opportunity to practice skills.	☐	☐	☐	☐	☐	☐
I feel I know my online students really well.	☐	☐	☐	☐	☐	☐

Would you care to make a comment about any of the statements listed above?

ITP Teaching staff feedback regarding e-learning **Exit this survey**

6. Student/programme information

The remaining section relates to the type of students and programme(s) that you teach on.

1. Please select the statement that best describes the mix of skills that you teach in your courses.

   - □ I use the e-learning system for courses that are mainly practical skills (over 75%)
   - □ I use the e-learning system for courses that are mainly theory based (over 75%)
   - □ I use the e-learning system for courses that are mainly for work-based courses (over 75%)
   - □ I use the e-learning system for courses that are an equal mix of theory and practical skills.
   - □ Other, please specify:

2. Please select the statement that best describes the level of the programme(s) that you teach.

- □ I teach mainly on a certificate/national certificate programme(for example, over 75% of your teaching time).
- □ I teach mainly on a diploma programme(for example, over 75% of your teaching time).
- □ I teach mainly on a degree programme (for example, over 75% of your teaching time).
- □ I teach mainly at post graduate level (for example, over 75% of your teaching time).
- □ I teach a mix of programmes, please list below.
- □ Other, please specify:

3. Please select the statement that best describes the average age of students that you teach.

- □ I teach students that are mainly 25 years or younger (for example, at least 75% of your students are 25 years or younger).
- □ I teach students that are mainly older than 25 years old (for example, at least 75% of your students are over 25 years).
- □ Other, please specify:

4. Please select the statement that best describes the type of students that you teach.

   □ I teach students that have been successful in their educational attempts in the past.

   □ I teach students that have not been successful in their educational attempts in the past.

   □ Other, please specify:

5. Please select the gender of students that you teach.

   □ My students are mainly male (for example over 75% are male).

   □ My students are mainly female (for example over 75% are female).

   □ I teach a mix of male and female students.

   □ Other comments, please specify:

6. Please select the statement that best describes the effect your use of e-learning has had on your students' retention and success.

□ I feel that generally my use of e-learning has dramatically increased my students' overall retention and success rate.

□ I feel that generally my use of e-learning has slightly increased my students' overall retention and success rate.

□ I feel that generally my use of e-learning has not affected my students' overall retention and success rate.

□ I feel that generally my use of e-learning has slightly decreased my students' overall retention and success rate.

□ I feel that generally my use of e-learning has dramatically decreased my students' overall retention and success rate.

□ Other, please specify:

ITP Teaching staff feedback regarding e-learning **Exit this survey >>**

7. Further information

Thank you for taking the time to complete this questionnaire. Just a couple of administrative issues to complete:

1. In order for me to obtain further understanding or clarification regarding your responses, please enter an email address I can contact you on:

2. Would you like to be entered in the draw for two free movie passes? The passes to the value of $30.00 will be presented as a Gift Card that is redeemable at SkyCity or Rialto cinemas throughout New Zealand (excluding SKYCITY Cinemas Whangarei and SKYCITY Cinemas New Plymouth).

   □ Yes, please enter me in the draw for the two free movie passes.

   □ No thank you. I do not wish to be entered in the draw for the two free movie passes.

NB: If you would like to go in the draw, please remember to provide your email above so I can contact you if you win the draw.

Thank you for taking the time to complete this survey. As indicated previously, all information gathered from you will be kept confidential and private, retained originally in a secure online database and then eventually in a locked storage unit at the Curtin University of Technology and when any information is presented in journals or my thesis, pseudonyms will be used to ensure you remain anonymous and will not be identifiable in any publications.